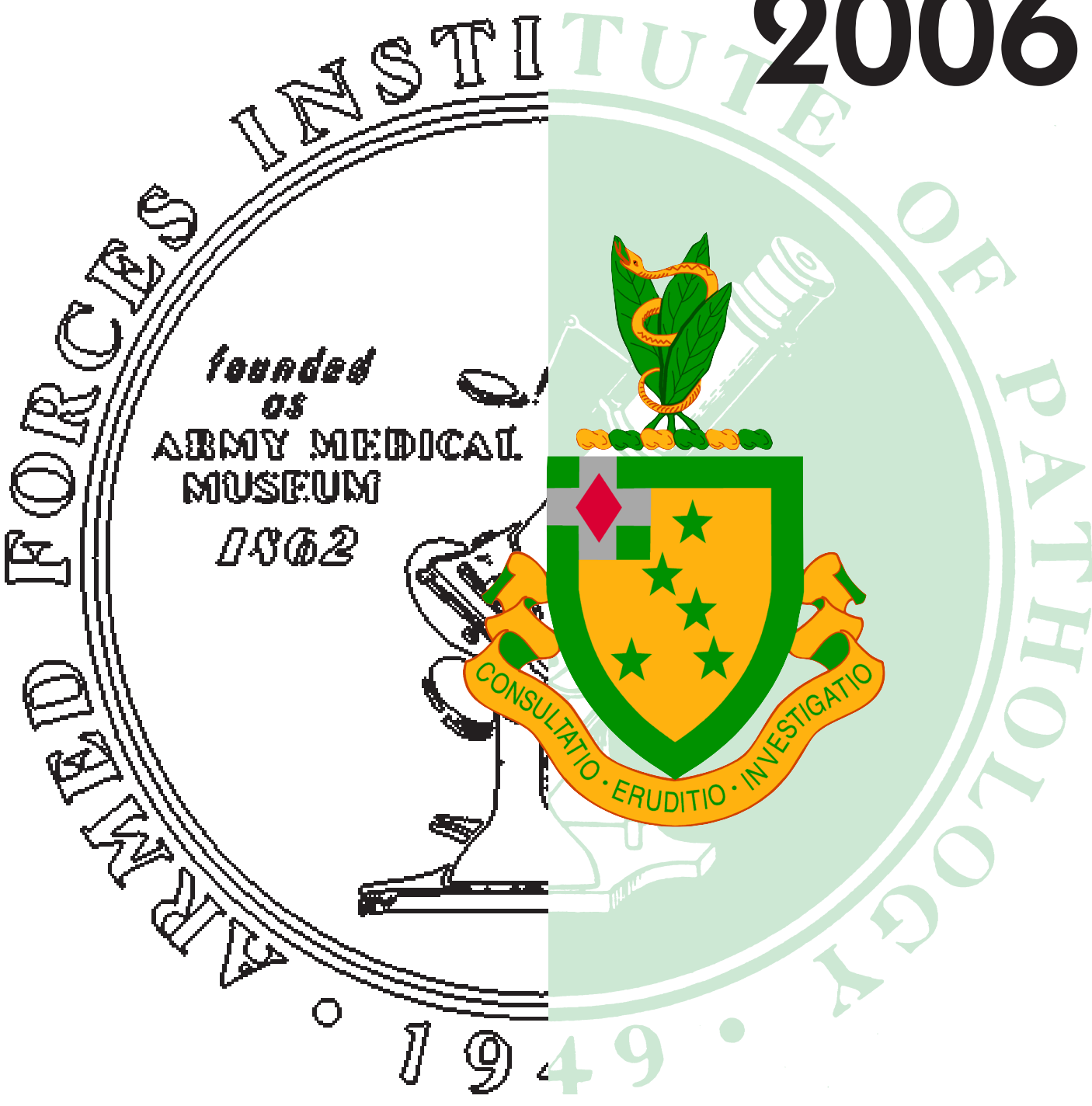
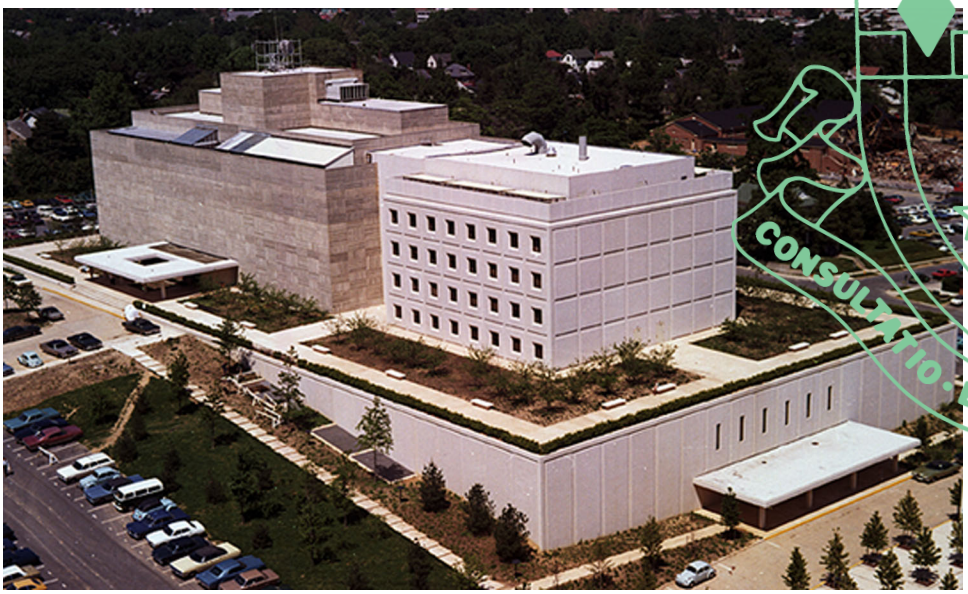
ARMED FORCES INSTITUTE OF PATHOLOGY

ANNUAL REPORT

2006




ARMED FORCES INSTITUTE OF PATHOLOGY



Mission

The Armed Forces Institute of Pathology supports the United States Department of Defense and serves the American people by providing medical expertise in diagnostic consultation, education, and research to enhance the health and well being of the nation.

Vision

The foremost pathology knowledge center, combating disease through:

Authoritative diagnosis
Future focus
Innovative research
Preeminent education

Guiding Principles

Patient comes first

Integrity/honesty

Professionalism

Excellence

Teamwork

Goals

1. PERFORMANCE—An Institute that clearly pursues, establishes, and preserves world-class performance based on access, quality, and cost.
2. RECRUITMENT & RETENTION—An atmosphere of personal and professional growth that recruits, develops, and retains innovative, creative people and renowned leaders.
3. OPERATIONS—An efficient work environment in a central location that fosters trust and collaboration, mission focus.
4. READINESS—A tri-service, interactive Institute recognized nationally for its distinguished contributions to the medical services and mission readiness of the Armed Forces through scientific discoveries, consultations, education and training, investigations, and research and development.
5. COLLABORATIONS—An Institute that actively promotes formal collaborative projects, programs, and processes that benefit the Armed Forces and the nation with government, academia, industry, and worldwide partnerships with a combined commitment to stewardship.

2006 ANNUAL REPORT

Armed Forces Institute of Pathology
Washington, DC 20306-6000

CONTENTS

Director's Message

The year 2006 was one of momentous accomplishment for the Armed Forces Institute of Pathology (AFIP). Once again we reached our goal of being the premier pathology center in the world attributable to our stringent dedication to pathology consultation, education, and research. We not only achieved our goals, we exceed them by advancing into new arenas that address and support the critical needs of a nation at war.

Aside from our world renowned staff of pathologists and scientists, our Repository consisting of over three million case files and tissue specimens remains our most venerated asset. Last year, the AFIP modernized the tissue Repository by the digitization of images and case records thus making them available for study internationally as well support the AFIP's digital fascicle library and the Tissue Microarray Program (TMA). TMA introduced the technology to create one slide containing 500 to 1,000 tiny cores taken from multiple tissue specimen blocks thereby allowing researchers to learn more about a given disease in less time. This technology and other services offered by the AFIP were made available globally utilizing our telepathology program. Version 2.1 of AskAFIP was instituted linking various knowledge bases and collections of case materials and authoritative resources published by the AFIP staff hence providing an innovative "just in time" educational experience to pathologists, radiologists, and other related specialists in both military and civilian medical communities. This updated version of AskAFIP encompasses the enhanced digital case repository, pathologic and radiologic imagery links to well known medical text, and a continued medical education tracking model that is truly technologically advanced.

A new era began in 2006 with the AFIP installing a Telemedicine System within the 10th Command Support Hospital in Baghdad. This system is the first of its kind to employ virtual slide scanning as a diagnostic tool. Slides can now be scanned at remotes sites such as the 10th Command Support Hospital in Baghdad, as well as other facilities spanning the globe, and then are sent to AFIP pathologists resulting in more efficient diagnosis and treatment expediency.

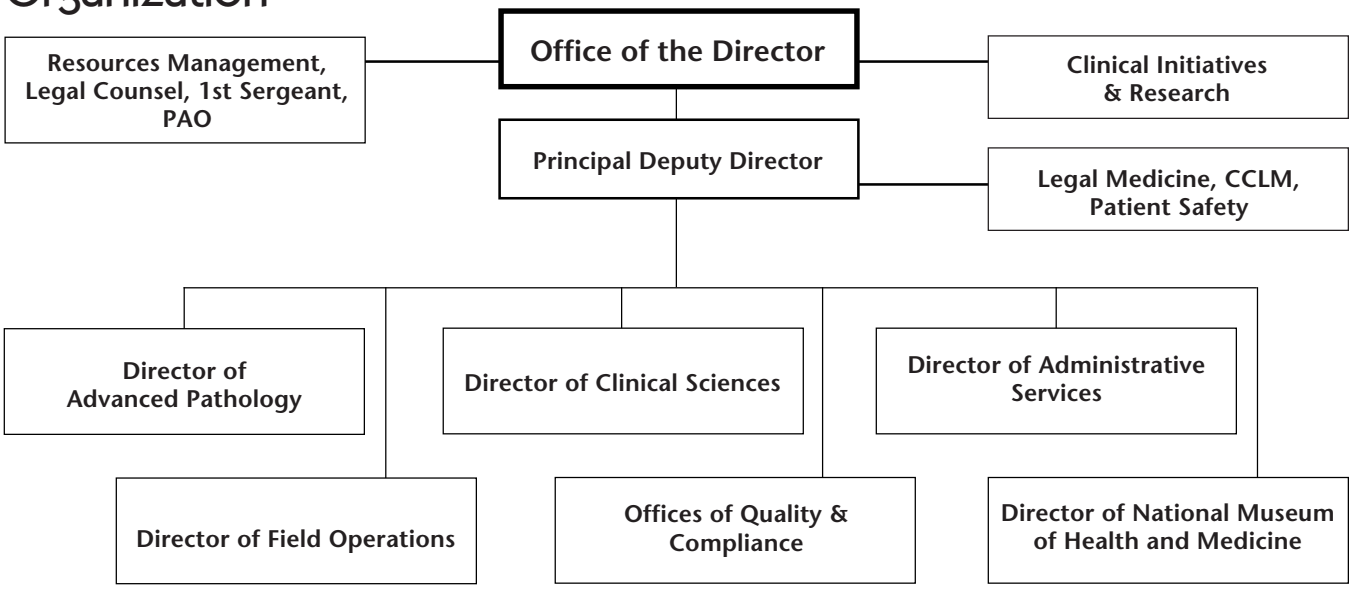
As the Global War on Terror continues to rage, the AFIP is proving to be invaluable once again. We perform a vital role as our expert pathologists and scientists investigate environmental factors and organisms that cause specific illness, adverse reactions to medications and chemicals, and ecological threats and diseases that can affect our deployed troops and their continued health upon return to the United States. This is most crucial as bioterrorism and chemical warfare remain a threat to our nation. Additionally, the AFIP maintains the INTOX Data Center which consolidates all military correlated diseases discovered in military personnel. This database contains registries of case material addressing the medical conditions of certain groups of military personnel such as: Former Prisoners of War, Veterans of Vietnam affected by Agent Orange, and those participating in the Global War on Terror. The Leishmania Registry is also included in this group. Leishmaniasis, an infection of the skin by protozoan parasites, is being diagnosed in increasing numbers of military and civilian personnel deployed to Iraq, Kuwait, and Afghanistan. Without the expertise of the AFIP staff, the cause and treatment of this infection would remain misunderstood and the welfare of our troops would be compromised.

The AFIP continues to research battlefield ballistic injuries and aid in the development of a new generation body armor that will better protect our men and women on the battlefield. Additionally, we deployed many of our staff to Dover Port Mortuary where they account for those soldiers and sailors who have given the ultimate sacrifice in the service of our country.

I wish to convey my gratitude and appreciation to the pathologists, scientists and support staff, both military and civilian, who comprise the AFIP staff for their dedication, commitment, perseverance, and arduous work that created and crafted the momentous success for the year 2006.

Renata B. Greenspan
COL, MC, USA
The Director

Organization



AFIP Key Personnel

Renata B. Greenspan, COL, MC, USA, Director (right); Florabel G. Mullick, MD, ScD (Hon), FCAP, SES, Principal Deputy Director(left), and Charles W. Pemble III, Col, USAF, DC, Deputy Director, Air Force, Director of Field Operations.

Renata B. Greenspan, COL, MC, USA
The Director, AFIP

Florabel G. Mullick, MD, ScD, FCAP, SES
Principal Deputy Director

Charles W. Pemble III, Col, USAF, DC
Director, Field Operations
Deputy Director, Air Force

Robert D. Foss, CAPT, DC, USN
Director, Quality and Compliance
Associate Director, Navy

Sumitra Parekh, COL, MC, USA
Director, Advanced Pathology

Christopher R. Owner, PhD
Director, Clinical Services

Adrianne Noe, PhD
Director, National Museum of Health and Medicine, AFIP

James L. Staiger, MD
Director, Administrative Services

William A. Gardner Jr, MD
Executive Director
American Registry of Pathology

Catherine M. With, JD, LLM, LLM
Major, US Army Judge Advocate General's Corps
Legal Counsel

Bob S. Stone
Public Affairs Officer

Noel D. Gravina, HMC(FMF)
First Sergeant

Board of Governors

The Board of Governors of the AFIP consists of the Assistant Secretary of Defense (Health Affairs), who serves as Chair of the Board; the Assistant Secretary for Health, Department of Health and Human Services; the Surgeons General of the Army, Navy, and Air Force; the Chief Medical Director for the Department of Veterans Affairs; and a former Director of the Armed Forces Institute of Pathology. The Board of Governors meets several times a year, and, based on the recommendations of the Scientific Advisory Board and institutional reports, establishes guidelines and broad administrative and professional policies in consonance with the medico-military objectives of the Institute. The Board of Governors met April 11, June 19, and October 31, 2006.

William Winkenwerder Jr, MD, MBA
Assistant Secretary of Defense for Health Affairs
Department of Defense
Pentagon, Washington, DC

LTG Kevin C. Kiley, MC, USA
The Surgeon General
Department of the Army
Bolling Air Force Base
Washington, DC

VADM Donald Arthur, MC, USN
The Surgeon General
United States Navy
Bureau of Medicine and Surgery
Washington, DC

LTGen George Taylor, USAF, MC
The Surgeon General
United States Air Force
Bolling Air Force Base
Washington, DC

Richard Carmona, MD, PhD
US Surgeon General
Department of Health and Human Services
Rockville, MD

Jonathan Perlin, MD, PhD, MSHA, FACP
Under Secretary for Health
Department of Veterans Affairs
Washington, DC

Robert F. Karnei, MD
Former Director, AFIP
Wythe County Community Hospital
Wytheville, VA

Scientific Advisory Board

THE CHARTER FOR THE AFIP **Scientific Advisory Board** states that the basic term of office of civilian members shall be two years and that no civilian member may serve more than two terms in succession; it further states that terms shall be staggered to provide a rotating membership. The Board meets at the call of the Director, AFIP, to advise on scientific and technical matters. Board members are selected from outstanding specialists in their respective fields of medicine. The closing meeting of the Scientific Advisory Board met 9–10, November, 2006, when the Board officially expired.

Ted Hadfield, PhD
Midwest Research Institite
Palm Bay, FL
(Awaiting appointment)

J. Carlos Manivel, MD
Division of Surgical Pathology
Mineapolis, MN
(Awaiting appointment)

Beverly P. Nelson, MD
Department of Pathology
Northwestern Memorial Hospital
Chicago, IL

Joseph E. Parisi, MD
Division of Anatomic Pathology
Mayo Clinic
Rochester, MN
(Awaiting appointment)

John E. Pless, MD
Indianapolis, IN
(Awaiting reappointment)

Alan D. Proia, MD, PhD
Department of Pathology
Duke University Medical Center
Durham, NC
(Awaiting appointment)

Robert L. Reddick, MD
Chair, Department of Pathology
University of Texas
San Antonio, TX
(Awaiting appointment)

Mary S. Richardson, MD
Director of Surgical Pathology
Department of Pathology and Laboratory Medicine
Medical University of South Carolina
Charleston, SC
(Awaiting appointment)

LeRoy Riddick, MD
Regional Medical Examiner
Mobile, AL
(Awaiting appointment)

Fred G. Silva, II, MD
US and Canadian Academy of Pathology
Augusta, GA
(Awaiting reappointment)

Patricia A. Thomas, MD
Professor and Chair of Pathology
Associate Dean, Office of Cultural Enhancement and Diversity
University of Kansas Medical Center
Kansas City, KS
(Awaiting appointment)

Ex Officio Members of the SAB from the Federal Service

COL Mark Brissette
Chief, Department of Pathology and Laboratory Medicine
Washington, DC

Col Paul B. Christianson
Commander, Air Force Medical Operations Agency
Office of the Surgeon General
McLean, VA

Lt Col Brian Kendall
Air Force Pathology Consultant
Wilford Hall Medical Center
Lackland AFB, TX

CDR David M. Larson
US Navy Pathology Consultant
Naval Hospital Jacksonville
Jacksonville, FL

Col Thomas Burke
Program Director, Mental Health Policy
Office of the Assistant Secretary of Defense (Health Affairs)
Falls Church, VA

Robert M. Friedman, MD
Professor and Chair, Department of Pathology
Uniformed Services University of the Health Sciences
Bethesda, MD

Kenneth Olden, MD
Director, OD/NIEHS/NIH (B2-01)
Research Triangle Park, NC

Fred H. Rodriguez, Jr, MD
Chief, Pathology and Laboratory Medicine Services
VA Medical Center
New Orleans, LA

Sherif R. Zaki, MD, PhD
Infectious Diseases Pathology
Centers for Disease Control & Prevention
Atlanta, GA

Renata B. Greenspan, COL, MC, USA
The Director
Date of Appointment — 28 May 2003

OFFICE OF THE DIRECTOR

Charlene Davis
Secretary

Florabel G. Mullick, MD, ScD, FCAP, SES
Principal Deputy Director
Date of Appointment — 4 June 1999

PRINCIPAL DEPUTY DIRECTOR

OFFICE OF THE PRINCIPAL DEPUTY DIRECTOR

STAFF

James Affonco, MA, Chief of Staff
Ridgely L. Rabold, AAS, Executive Assistant
Hilda P. Elescano, Administrative Assistant

MISSION/ORGANIZATION

The Principal Deputy Director (PDD):

- Serves as the principal advisor, assistant to, and executive agent of the Director, Armed Forces Institute of Pathology (AFIP) for the overall direction, administration, policy formulation, business practices, operation and management of the organization in executing all of its assigned missions.
- Supports the Director, AFIP by providing broad guidance and leadership for all areas of the Institute and insures that these areas contribute in an appropriate manner to the overall missions of the Institute.
- Ensures the integration of financial strategies, business planning, and the scientific activities of the Institute which fully support the Director's responsibilities for program development and management review of all Institute resources and missions to insure they are consistent with planned resource objectives.
- Is the primary executive agent of the Director, AFIP, in carrying out the responsibilities of scientific policy, financial budgeting, and resources management oversight of all Institute programs and missions.
- Monitors program evaluation activities throughout the Institute and recommends policy/program changes to The Director to improve the efficiency and effectiveness of Institute programs.

CONSULTATION, EDUCATION, RESEARCH

Dr. Mullick is credentialed and privileged in environmental pathology. As Chair, Department of Environmental and Infectious Disease Sciences, she continues to provide consultations in environmental pathology. She is a world-recognized expert in adverse drug reactions and continues to lecture widely on environmental and adverse drug reaction issues, especially in pediatric pathology, and participates in the development of funded research protocols. She also lectures at AFIP courses and serves as course director for the AFIP Spanish Course. Dr. Mullick obtained funding to continue the Summer Student Program at the AFIP and has been a strong champion for minority education through her work with the Ana G. Mendez University System. For additional information see the Department of Environmental and Infectious Disease Sciences section.

ADMINISTRATION AND MANAGEMENT SYSTEMS OVERSIGHT

We have demonstrated capabilities to make significant improvement through our intense focus on operational excellence. Operational excellence is our ability to continually drive quality improvements while keeping costs at a minimum. This systematic and disciplined approach is not new for the Institute. In fact, we believe it is one of our unique core competencies. Each year we take operational excellence to a higher level. Especially important is our internet capabilities and applications which offer accelerated opportunities to build closer relationships with our partners and contributors. Our web-site provides detailed course information and the opportunity to register online. This highly disciplined commitment to operating excellence will continue to fuel our international endeavors.

Our ongoing mission to be able to respond to all kinds of needs in a variety of emergent situations requires the many talents and experiences of our multicultural workforce. We value this diversity - and seek to foster it – because it sparks innovation when employees with different perspectives work together to offer solutions to the many challenges that science and the current times present.

In the subsequent sections of this report that are devoted to individual service-line and department accomplishments you will clearly see the results of our renewed focus and the commitment of our dedicated people. Their contributions and skills have been central to the record-setting achievements of 2006 and continue to provide us with a hopeful view toward the future. It is through these 5 service-lines that we are able to achieve the high level of response to all sorts of requirements in all sorts of situations. The AFIP stands ready for whatever the future holds in store.

SPECIFIC ACTIVITIES FOR THE PRINCIPAL DEPUTY DIRECTOR

PUBLICATIONS

Journal Article

Murakata LA, Lewin-Smith MR, Specht CS, Kalasinsky VF, McEvoy PL, Vinh TN, Rabin L, Mullick FG. Characterization of acrylic polyamide plastic embolization particles in vitro and in human tissue sections by light microscopy, infrared microspectroscopy and scanning electron microscopy with energy dispersive x-ray analysis. *Mod Pathol*. 2006;19:922-930.

Abstracts

1. Lewin-Smith MR, Neafi R, Mullick FG. Birefringence of helminths pathogenic to humans. *Mod Pathol*. 2006;19(3):Abstr 611, p133.
2. Kalasinsky VF, Tristan JO, Pizzolato KM, Tamanaha EY, Gaydos JC, MacIntosh VH, Malone JL, Rumm PD, Mullick FG. DoD Directory of Public Health Laboratory Services Internet-Accessible Database. Book of Abstracts of the International Conference on Emerging Infectious Diseases, Atlanta, Ga, March 19-22, 2006.
3. Kalasinsky VF, Tristan JO, Pizzolato KM, Tamanaha EY, Gaydos JC, MacIntosh VH, Malone JL, Rumm PD, Mullick FG. Internet-Accessible Database of DoD Laboratory Services. Book of Abstracts of the Society of Armed Forces Medical Laboratory Scientists, Reno, Nev, March 26-30, 2006.

Book Chapter

Centeno JA, Tchounwou PB, Patlolla AK, Mullick FG, Murakata EM, et al. Environmental pathology and health effects of arsenic poisoning: a critical review. In: Naidu R, Smith E, Owens G, et al, eds. *Managing Arsenic in the Environment: From Soil to Human Health*. Chapter 17. Oxford: Elsevier Science Ltd; 2006: pp 311-327.

Other Publications

Lewin-Smith MR, Kalasinsky VF, Mullick FG: Letter to the Editor. Correspondence Re: "C. Guo, K.E. McMartin, The cytotoxicity of oxalate, metabolite of ethylene glycol, is due to calcium oxalate monohydrate formation. *Toxicology*. 2006;222:160-161.

Lectures and Presentations

FG Mullick

1. January/February 2006, McAllen, Tex, 3rd Annual Minority Serving Institution Research Partnerships (MSIRP) Conference, keynote speaker.
2. March 2006, Fort Buchanan, Puerto Rico, Fort Buchanan Commemorates Woman's History Month 2006 , keynote speaker, "Women: Builders of Communities and Dreams."
3. March 24, 2006, Hato Rey, Puerto Rico, Headquarters, Department of Homeland Security.

Invited Speaker: "Women: Builders of Communities and Dreams."
4. September 17 - 22, 2006, Montréal, Québec, Canada, XXVI International Congress of the IAP, organized and chaired a day-long symposium, "Environmental Pathology: Symposium on Respiratory Toxicology."
5. December 2006, Valencia Spain, IVO Conference in Memoriam of Dr. Antonio Llombart.

Deployments

1. February 2006, San Juan PR, MIE Project and Metropolitan University System.
2. February 2006, Atlanta, Ga, ADASP Meeting.
3. February 2006, Atlanta Ga, USCAP Meeting.
4. February 2006, India, GOA Projects.
5. February 2006, San Juan PR, AGMUS Board of Directors.
6. March 2006, Atlanta, Ga, International Conference on Emerging Infectious Disease.
7. April 2006, Orlando Fla, AGMUS Board of Directors AGB Natl. Conference on Trusteeship,
8. April 2006, San Juan PR, US Advisory Board Meeting.
9. May 2006, Honolulu Hawaii, EPI Board Meeting.
10. September 2006, Montreal, Canada, IAP Congress.
11. October 2006, Buenos Aires, Argentina, AGMUS Board of Directors Annual Seminar.
12. November 2006, San Juan PR, AGMUS Board of Directors.

External Representation

1. Department of Defense Representative to the National Advisory Environmental Health Sciences Council, National Institute of Environmental Health Sciences, Chapel Hill, NC.
2. Armed Forces Institute of Pathology representative to Armed Forces Epidemiology Board, Department of Defense (Health Affairs), Washington, DC.
3. Editorial Reviewer:
    1. *Annals of Internal Medicine*
    2. *Gastroenterology*
    3. *Hepatology*
    4. *Electronic Journal of Pathology and Histology*
    5. *Annals of Diagnostic Pathology*
    6. *Toxicologic Pathology*
    7. *Patologia: Revista Latinoamericana*
4. Member, External Advisory Committee, Center for Environmental Health, Jackson State University.
5. Member, International Geological Correlation Program in Medical Geology, International Union of Geological Sciences and UNESCO.
6. Member, Research Center for Minority Institutions, Metropolitan University, Ponce, Puerto Rico.
7. President, National Science Foundation's Model Institutions for Excellence Advisory Board, Ana G. Mendez University System.
8. Chair, Task Force for National Science Foundation's Science and Technology Alliance, Ana G. Mendez University System.
9. Member, Scientific Advisory Board, FindCancerExperts.com, the patient web resource for accurate cancer diagnosis.
10. Chair, US Presidential Advisory Board for Science and Technology, Ana G. Mendez University System.
11. Executive Secretary, Sub-committee on Scientific Advisory Board for Pathology and Laboratory Science to the Defense Health Board.

Representation to Professional Societies

1. Member, Foundation for Advanced Education in the Sciences, Inc
2. Member, Society for Pediatric Pathology
3. Member, United States and Canadian Academy of Pathology
4. Member, American Academy of Federal Service Physicians
5. Member, American Association for the Study of Liver Diseases
6. Member, Hans Popper Society
7. Member, Sociedad de Gastroenterologia, Puerto Rico
8. Member, Academy of Medicine of Washington

9. Member, Senior Executives Association
10. Member, Association of Directors of Surgical Pathology
11. Member, American Medical Association
12. Founding Member, History of Pathology Society
13. Member, Society of Toxicologic Pathologists
14. Member, Sociedad Latino Americana de Patologia
15. Member, Asociacion Mexicana de Patologos, A.G., Mexico
16. Member, Latin America Pathology Foundation
17. Member, Education Committee, International Academy of Pathology
18. Member, Finance Committee, International Academy of Pathology
19. President-Elect, International Academy of Pathology

Other Representations

1. Hispanic Employment Manager, AFIP
2. Consultant, Equal Employment Opportunity, AFIP, Washington, D.C.
3. Member, Ash Library Committee, AFIP, Washington, D.C.
4. Member, Executive Committee, AFIP
5. Member, Education Committee, AFIP, Washington, D.C.
6. Chair, Principal Deputy Director's Council, AFIP

Catherine M. With, JD, LLM, LLM
Major, US Army Judge Advocate General's Corps
Legal Counsel
Date of Appointment — 15 July 2006

OFFICE OF THE LEGAL COUNSEL

MISSION

The Office of The Legal Counsel is responsible for providing legal services and legal advice to the Director and Staff of the Institute.

STAFF

Catherine M. With, JD, LLM, LLM, Major, US Army Judge Advocate General's Corps, Legal Counsel
Alan P. Cash, RN, JD, Deputy Legal Counsel
Charlene Davis, Legal Assistant (part-time)

ACCOMPLISHMENTS IN 2006

The Legal Counsel's Office provided legal services and legal advice on a wide range of topics to the Director and Staff of the Institute, to include the legal issues regarding the unique relationship between the AFIP and the American Registry of Pathology (ARP), Animal research, Bioethics issues, Biosurety and Biosafety issues, Biotechnology, Base Realignment and Closure Law (BRAC), Claims, the Code of Conduct, Complementary and Alternative Medicine, Computer Crimes, Congressional Inquiries, Contract Administration/Review and Procurement law matters, Copyright issues, Credentialing, Criminal law (civilian), Deposition preparation, Environmental law, Ethics Reviews and Ethics Training, Fiscal Law, Food and Drug Law, Fraternization, Freedom of Information Act issues, Genetics and the Law, Health Care law, Health Information and Technology, Health Information Portability and Accountability Act (HIPAA), Information Technology, Institutional Review Board, Intellectual Property, Intelligence activities law, International law, Labor and Employment Law, Law of War, Legal Assistance/Notary/Tax Support, Legal Issues surrounding DNA, legal research on many issues, Licensing issues, Litigation support and preparation, Medical-Legal issues, Medical records, Memoranda of Agreements/Understanding, Military and Civilian Personnel Law Issues, Military Justice, National Museum of Health and Medicine, National Practitioner Data Bank, OGE 450's and SF 278's, the Office of the Armed Forces Medical Examiner (OAFME), Operational Law, Patient Safety, Posse Comitatus issues, Privacy Act issues, Procurement Fraud issues, Quality Assurance, Regulatory law, Risk Management, Statutory research, Technology Transfer Agreements (Cooperative Research and Development Act), and Trademark issues.

1. The Office of the Legal Counsel provided substantial support and advice to the OAFME on a variety of matters, including issues affecting the OAFME in the Global War on Terrorism. Such support included:
    - Review of the requirements for release of autopsy reports.
    - Legal review and revision of MOA with other government agencies for DNA analysis.
    - Legal review and revision of MOA with NASA for support of space shuttle mission.
    - Legal representation at depositions of OAFME physicians and scientists.
    - Review of all agreements between the OAFME and various non-DoD agencies to ensure compliance with the Posse Comitatus Act. Such review was initiated by a

recent ruling in US v. Johnson which involved a violation by the federal government of the Posse Comitatus Act.
    - Legal review of various FOIA requests.
2. The office coordinated numerous requests to interview and depose Institute staff in connection with government and private litigation, or to obtain patient information relevant to litigation, and represented Institute and DoD interests at several such interviews and depositions while advising staff members providing the testimony.
3. The office continued its involvement as liaison to the Army Litigation Division and the Department of Justice with regard to pending tort claims and litigation. The office also provided support to Army Claims Service and Army Litigation Division on various claims filed against Army Military Treatment Facilities, as well as to various military prosecutors in courts martial.
4. As the Institute's designated agency ethics official and ethics counselor, the Legal Counsel provided ethics training, prepared written and oral opinions and advisory letters for Institute leadership and individual staff members, and also managed the financial disclosure reporting required of certain staff members under the Joint Ethics Regulation. All AFIP personnel received face-to-face ethics training as prescribed by the Department of the Army.
5. The Legal Counsel continued to provide advice on several copyright, licensing, software and nondisclosure issues. The office continued to oversee technology transfer activities, including coordination on additional cooperative research and development agreement proposals and management of material transfer agreement documents.
6. The Legal Counsel provided routine legal advice and guidance on the day-to-day work of the Institute in such areas as:
    - MOAs with other agencies for provision or exchange of technical and/or educational services, as well as agreements with nonfederal and foreign entities pertaining to research, education and training.
    - Requests by outside parties for access to patient records and tissues.
    - Attending IRB, Research, Quality Assurance and HIPAA committee meetings to offer legal advice and counsel.
    - Coordination with the AFIP Office of Public Affairs to offer legal advise and counsel when necessary, particularly in the areas of HIPAA and Privacy Act compliance.
    - Responding to biosurety and biosafety legal issues.
    - Civilian and military personnel administration, discipline, and investigations.
    - Offers by outside sources to pay employees' travel expenses.
    - Proposed revisions to Institute regulations.
    - Military administrative law matters.
    - Contract administration and procurement law matters.
    - Fiscal law matters, including the structure of reimbursable operations.
    - Issues specific to the operation of the National Museum of Health and Medicine.
7. The Legal Counsel's Office personnel participated in the following conferences and training events in 2006:
    - DoD/US Army Medical Command Health Law Conference, March 2006, San Antonio, Tex.
    - 2006 Staff Judge Advocate Course, June 2006, Charlottesville, Va.
    - Federal Laboratory Consortium Mid-Atlantic Conference, September 2006, Cumberland, Md.
    - Cooperative Research and Development Act, Workshop, October 2006, Ft Detrick, Md.
    - DoD Technology Transfer Integrated Process Team Conference, November 2006, San Diego, Calif.

Bob S. Stone
Public Affairs Specialist
Date of Appointment – 18 September 2006

OFFICE OF PUBLIC AFFAIRS

Christopher C. Kelly
Director
Date of Appointment – 13 January 1991 – 12 May 2006

STAFF

Bob Stone, BS, Public Affairs Specialist
Michele R. Hammonds, BA, Public Affairs Specialist (returned from active duty in Iraq)

IMPACT

The Office of Public Affairs provided a full range of external and internal communications programs in support of AFIP's essential military and civilian health care missions. During 2006 this was accomplished by:

- Publication of 2 comprehensive issues of The AFIP LETTER, distributed to over 16,000 pathologists worldwide
- A variety of media relations programs.
- Arranging and conducting briefings for national and foreign dignitaries.
- Coordinating numerous special projects and events.
- Community relations programs to include tours.

Ms. Hammonds provided comprehensive feature stories on AFIP personnel and programs for publication in The AFIP LETTER and for broad release, organized and conducted the Institute's Newcomers' Briefings, and assisted with media relations.

Media Relations Activities/Subjects

Over three dozen high-profile media inquires, including interviews with:

- France Channel 2
- Univision (Spanish language)
- Russian Channel 1

In support of Defense POW/MIA objectives:

- The Pentagon Channel
- First uniformed military forensic anthropologist
- Voice of America
- 1918 Spanish Flu
- BBC
- Flight 77 Sept. 11, 2001 manifest
- New Jersey *Star Ledger*
- Daschle/Leahy FBI anthrax letter case
- *Los Angeles Times*
- Detainee deaths

PUBLICATIONS

1. Kelly CC, Hammonds MR, Casey BL, eds. The AFIP Letter. Winter 2006; 164.

2. Kelly CC, Hammonds MR, Casey BL, eds. The AFIP Letter. Winter 2006; 164.

PROFESSIONAL ACTIVITIES

Official Trips

1. July 2005: International World Cancer Congress, Washington, DC, MR Hammonds.
2. July 2005: Association of the US Army Medical Symposium, San Antonio, Tex, MR Hammonds.
3. August 2006: Force Health Protection Conference, Albuquerque, NM, MR Hammonds.
4. September 2006: XVIII International Congress of the International Academy of Pathology, Montreal, Canada, MR Hammonds.
5. October 2006: Association of the US Army Industry Meeting, Washington, DC, MR Hammonds.
6. November 2006: Association of Military Surgeons of the United States Meeting, San Antonio, Tex, MR Hammonds.

Donna M. Roncarti, Col, USAF, BSC
Director
Date of Appointment — 1 September 2002

CENTER FOR CLINICAL LABORATORY MEDICINE

STAFF

Donna M. Roncarti, Col, USAF, BSC, Director
Dan E. Harms, COL, MS, USA, Associate Director
Larry R. Ciolorito, CDR, MSC, USN, Associate Director
Imelda Catalasan, Maj, USAF, BSC, Dep. Director, Office of Lab Management
Gerry S. Rapisura, HMC, USN, LCPO, Navy CLIP Program Manager
Jacqueline M. Bryant, SFC, USA, Army CLIP Program Manager
Gary S. Brown, MSgt, USAF, Air Force CLIP Program Manager

IMPACT

Directs the operation of the DoD Clinical Laboratory Improvement Program as defined by DoD Instruction 6440.2 and Public Law 100-578 (Clinical Laboratory Improvement Act). Administers public law and federal policy for military medical laboratory operations in peace, contingency and wartime; ensuring no restrictions or cessation of laboratory services that would impede DoD mission requirements.

Regulatory Oversight

- Determines policy that provides guidance for all military medical laboratory operations in the DoD.
- Directs activities and funding of an operating budget of over $3.5 million annually for office administration and component central contracts for medical laboratory proficiency testing, accreditation and inspections.
- Resolves situations where public or state law is in conflict with DoD policy.
- Responds to congressional, military, or public inquiries relative to laboratory services.
- Reviews laboratory operations data to include proficiency testing results, accreditation and regulatory inspection results.
- Coordinates laboratory technical assistance and intervention strategies among DoD laboratories.

Consultative Services

- Provides consultative services and impact analysis on clinical laboratory issues to the Director, Armed Forces Institute of Pathology (AFIP), to each Service's Surgeon General, and to the Office of Assistant Secretary of Defense for Health Affairs.
- Provides professional and management guidance to DoD laboratory officers and enlisted members.
- Co-Chairs the DoD Laboratory Joint Working Group (LJWG).
- Gatekeeper for Tri-service and CDC initiative to develop a biological warfare detection and response system, i.e., National Laboratory Response Network.

EDUCATION

The department presented 12 workshops/seminars encompassing 224 man-hours of departmental time with approximately 150 attendees.

ACTIVITIES

The following are DoD laboratory registration statistics as of December 31, 2006:

- o Army: 544 certificates with 1078 sites
- o Navy: 297 certificates with 642 sites
- o Air Force: 360 certificates with 748 sites

- Enhancement/sustainment of CDC and Tri-Service Laboratory Response Network (LRN) Partnership Initiative. The purpose of the LRN is to rapidly detect and identify biological threat agents and to alert public health and law enforcement agencies of a suspected release to minimize exposure to that agent. CCLM functions as the coordinating office for DoD participation in the LRN as directed by the 3 Service SGs. As the coordinator of DoD laboratory network participation, CCLM must communicate, implement and ensure compliance with all changes in federal law regarding handling of select agents, specimen collection and testing protocols, and maintenance of proficiency by DoD network labs. To assist with the communication/coordination responsibilities, CCLM made the update of LRN progress, activities and issues, a standard agenda item at the biannual Laboratory Joint Working Group meetings. The DoD LRN gatekeeper provided a summary of the CY06 activities of the LRN. Significant actions during CY06 included: Transitions to LRN reference laboratory status: National Naval Medical Center's transition has been delayed by remediation efforts subsequent to recent facilities upgrade to BSL-3 laboratories, but the first assay (probably H-5) is now expected during FY07; Ft Bragg, Ft Hood, and William Beaumont are still awaiting installation of modular BSL-3 laboratories required for the transition, which is now expected in FY07; and Scott AFB will not transition to an LRN reference laboratory due to biosurety and facility issues.
- USAMRIID completed their Lab Qualification Checklist and have been appointed a LRN national laboratory by the CDC.
- This office saved over $1 million annually in registration and inspection fees. CCLM avoided in excess of $13 million in fees to the Center for Medicare and Medicaid Services since inception of the program in 1993.
- Proficiency Testing (PT): All registered laboratories performing moderate- and/or high-complexity procedures (and most laboratories performing waived procedures) were enrolled in centralized Service-specific contracts during 2006. CCLM reviewed over 284,106 (8429 LAST YR??) PT surveys for CY06. There were 6 instances of repetitive consecutive PT failures (3 out of 4 PT event failures) on 5 analytes in 2006 that required the limitation of CLIP certificates at affected sites. Overall, proficiency test performance for all survey events was 96.7%, well above the 80% standard.
- Accreditation: The College of American Pathologists (CAP), the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and COLA are all institutions that accredit DoD laboratory facilities. Each facility is inspected biennially, results of inspections are forwarded to CCLM for review, and CCLM maintains active liaison with DoD laboratory facilities and accrediting organizations, helping ensure effective communication, compliance, and problem resolution.
- Laboratory Composite Health Care System (CHCS) Interconnectivity: Supported ongoing effort to train DoD MTF lab personnel and expand the use of CHCS interconnectivity software to establish laboratory data transfer between DoD facilities, DoD and VA facilities, and DoD and civilian reference laboratories. Refresher training is conducted on a quarterly basis. Laboratory Interoperability has significantly increased patient safety and improved quality of patient care by eliminating transcription errors and real-time retrieval of referral test results.
- Col Roncarti—Expediently notified all DoD laboratories and Service logistics centers of reagent manufacturing and equipment problems during the past year.
- Championed adoption throughout DoD of recommendations made by the American College of Medical Genetics regarding expansion of newborn screening. CCLM has researched and written the Statement of Work, Technical Submission Requirements, and Technical Evaluation Factors required as part of an RFP to provide comprehensive screening under a uniform DoD contract with a commercial reference laboratory. CCLM has also tracked the extended contracting process and served as Subject Matter Expert for the laboratory portion of these expanded requirements. These steps will provide for a comprehensive battery of screening tests at all DoD sites, greater standardization, and enhanced patient safety.
- Achieved Service standardization in the fundamentals of laboratory workload recording, and chaired a subsequent Navy working group that reviewed the structure and utilization of

laboratory panels at different MTFs. Provided several recommendations for how best to standardize laboratory utilization without impinging upon local medical staff autonomy.

- Successfully chaired the Navy working group that reviewed diagnostic preparations for a potential influenza pandemic. These efforts produced enhancement and standardization of rapid screening methods, broadly expanded utilization of LRN (PCR) methods (including to the Fleet), and standardized policies for referral of samples for best diagnostic effect.
- Continues to participate in both the Integrated Consortium of Laboratories Network (ICLN), and the DoD Laboratory Policy and Coordinating Group (LPCG). The ICLN, with CCLM membership on the Technology Sub-Committee began to identify the technology needs to link US national assets, labs, processes, procedures, testing, standards, and scenarios. The LPCG has continued to work Bio-Defense issues across the DoD with specific concentration on laboratory requirements, testing protocols, and standards. Both groups focus on scenarios and their outcomes to identify requirements in the testing and readiness arena to ensure the nation, and DoD are prepared for any contingency.
- Actively engaged in promoting biodefense initiatives. Coordinated laboratory breakout sessions at the 2006 Air Force Medical Chemical, Biological Radiological, Nuclear and High Yield Explosives (CBRNE) Symposium. These training sessions provided the most recent updates to laboratory testing policies, technology used for identification of bioagents, current and future biodefense programs.
- Served as subject matter experts for the new Laboratory/Anatomic Pathology Commercial-Off-The-Shelf System (COTS) integration project. Performed detailed gap analysis for the laboratory module on the current system (Composite Health Care System) and the COTS product. Highlighted the benefits and the efficiencies to be obtained from the new system. Key member of a panel of experts involved in the design of the DoD prototype.

Presentations

1. January 2006: Washington, DC, Laboratory Joint Working Group Meeting, "CLIP/CLIAC/AFIP Pamphlet 40-24 Update" DE Harms.
2. January 2006: Washington, DC, Laboratory Joint Working Group Meeting, "LRN/ bio-defense issues", DE Harms.
3. February 2006: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "The ins and outs of workload recording," "Clinical laboratory management indicators," "Laboratory standard cost methodology," "AF manpower model," Clinical laboratory improvement program," "PT basics," LRN and bio-defense," I Catalasan.
4. February 2006: Atlanta, Ga, LRN Partners Meeting, "DoD status and participation update," DM Harms.
5. March 2006: Reno, Nev, Society of Armed Forces Medical Laboratory Scientists, Thirty-Fifth Annual Meeting, "CAP PT order process and CLIP certificates renewal," "Overview of CLIA 88 and DoD CLIP," GS Rapisura.
6. March 2006: Reno, Nev, Society of Armed Forces Medical Laboratory Scientists, Thirty-Fifth Annual Meeting, "Air Force breakout session," DM Roncarti.
7. March 2006: Reno, Nev, Society of Armed Forces Medical Laboratory Scientists, Thirty-Fifth Annual Meeting, "Navy breakout session," LR Ciolorito.
8. May 2006: Rome, Italy, NATO 17th BioMedAC, "Generalized concept of LRN and DoD participation," DE Harms.
9. May 2006: Chicago, Ill, MEPS, "AFIP Pamphlet 40-24/CLIP briefing," DE Harms, JM Bryant.
10. August 2006: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "The ins and outs of workload recording," "Clinical laboratory management indicators," "Laboratory standard cost methodology," "AF manpower model," Clinical laboratory improvement program," "PT basics," LRN and bio-defense," I Catalasan.
11. August 2006: Kerrville, Tex, Army Junior Lab Officer's Workshop, "AFIP Pamphlet 40-24/CLIP briefing," DE Harms.
12. September 2006: Silver Spring, Md, LRN Partners Meeting, "DoD status and participation update," DE Harms.

RESEARCH

Publications

1. Catalasan I. BOMO Lab Break Out CD: a compendium of laboratory management topics and issues. Self-published.

2. Ciolorito LR. Consultant's Corner Society Scope. Society of Armed Forces Medical Laboratory Scientists Newsletter. Winter 2006; Vol 9, Number 1.
3. Roncarti DM. Consultant's Corner Society Scope. Fall 2006; Society of Armed Forces Medical Laboratory Scientists Newsletter.

GOALS

1. Support the United States Department of Defense readiness responsibility and contribute to the ongoing health and well being of military personnel.
   - Continue to coordinate with national clinical laboratory accrediting agencies to resolve any issues that impact the accreditation of DoD laboratories.
   - Continue to provide consultation to the Armed Service Blood Program Office on restructuring and consolidation issues.
   - Continue to be a resource for information on the development of biological warfare agent identification and emerging infectious disease procedures, biosurety and select agent handling rules and the oversight of the PT program for LRN Sentinel, Reference, and National labs.
   - Continue to provide support for the establishment of field-deployable equipment/ supply requirements.
   - Key role/membership in the Integrated Consortium of Laboratories Network (ICLN) and the DoD Laboratory Policy and Coordinating Group. The former to ensure DoD representation to the US national consortium for bio defense policies and processes and the latter to ensure DoD stakeholders' say in planning and coordinating bio defense posture into the future.
2. Contribute to the provision of top-quality, cost-effective health care benefits.
   - Review and analyze DoD reference laboratory utilization patterns to identify candidate tests for diversion to cost saving DoD testing facilities.
   - Support the continued development and evolution of the Laboratory Joint Working Group.
   - Promote potentially cost saving tri-service consolidation of cytology and molecular/ genetic testing services.
   - Promote the adoption of the new recommendations made by the American College of Medical Genetics regarding expansion of newborn screening.
3. Assist in the development of military and civilian leaders and staff who excel in a changing world.
   - Attend the Society of Armed Forces Medical Laboratory Scientists meeting in March 2007. Present the status of CLIP registration, identify problem areas, outline the long-term plan, and identify anticipated changes made by CLIAC.
   - Educate members of the DoD laboratory community on Laboratory Joint Working Group projects and issues.

Geoffrey W. Rake, MD, MSA
Director
Date of Appointment — 6 October 2003
(contractor, 2 September - 3 October 2003)

DEPARTMENT OF DEFENSE PATIENT SAFETY CENTER

STAFF

Professional

(D) Michael Datena, Lt Col, USAF, Pharmacist, Deputy Director
(A) Paul Hoerner, Lt Col, USAF, Pharmacist, Deputy Director
Rajasri Roy, PhD, Epidemiologist (contractor)
(D) Bridget Olson, Human Factors Engineer (contractor)
(A)(D) Maureen Hunter, Human Factors Engineer (contractor)
Mary Ann Davis, RN, Safety Officer (contractor)
Pamela Copeland, RN, JD, Safety Officer (contractor)
Juanita Gray, Data Analyst (contractor)
Richard Hildreth, Information Systems (contractor)

Administrative

Peter Stifel, Administrator (contractor)
Pamela Oetgen, Newsletter Editor (contractor)
Nanette Barry, Secretary (contractor)
Karen Ashbrook-Barnes, Technical Writer (contractor)

IMPACT

The Department of Defense (DoD) Patient Safety Center (PSC) in 2006 continued to meet its mission as defined in statute and DoD Directive and Regulation. The PSC, established in 2000, maintains the DoD Registry for patient safety data collected by the Services from 170 military medical and dental clinics and hospitals worldwide.

In 2006 the PSC produced 4 Quarterly Summaries and the third Annual Summary of Information Reported to the PSC, quarterly Patient Safety Newsletters, 7 Focused Reviews exploring our data in areas of particular concern, and 2 DoD Patient Safety Alerts and our first Safety Advisory. The PSC collaborated on a DoD patient safety toolkit targeting hand-off communications. The PSC continued its active participation in the procurement of a commercial off-the-shelf patient safety reporting (PSR) system. Initial deployment of PSR was delayed due to concerns raised during testing and subsequent modifications. PSR Deployment is due to begin later in FY 2007. Lastly, plans to move the Patient Safety Center from the Armed Forces Institute of Pathology to the TRICARE Management Activity are currently on hold pending final determinations subsequent to the Base Relocation and Closure process.

Bottom line: 2006 continued our exploration of options and providing solutions for improving patient safety across DoD.

CONSULTATION

The DoD PSC Registry collects, analyzes, and reports cases on a fiscal year basis. The cases are collected in four separate streams: Monthly Summary Reports of non-medication events (includes near-misses and actual events), MEDMARX medication error events, Root Cause Analyses (RCA), and Failure Mode and Effects Analysis (FMEAs).

Cases	*Total cases*
Monthly summary reported (non-medication) events	60,772
MEDMARX (medication events)	
Inpatient	7,613
Outpatient	29,601
RCAs	106
FMEAs	3

EDUCATION

Number of courses participated in by staff: 10

Number of trainees: 386

Presentations:

March

1. Patient Safety Center Overview, Introduction to Patient Safety, Rockville Md, G Rake.
2. MEDMARX Basic Training, Rockville Md, M Datena.

June

1. Patient Safety Center Overview, Introduction to Patient Safety, Rockville Md, G Rake.
2. MEDMARX Basic Training, Rockville Md, M Datena.

August

1. MEDMARX Advanced Training, Sigonella, Italy, M Datena.

November

1. Patient Safety Overview, Fellows of National Association of Public Hospitals and Health Systems, Silver Spring Md, G Rake, P Copleand, M Davis.
2. Data Use, Regional Patient Safety Conference, San Antonio Tex, G Rake.
3. Data Use, Regional Patient Safety Conference, San Diego Calif, G Rake.
4. MEDMARX Basic Training, Rockville Md, P Hoerner.

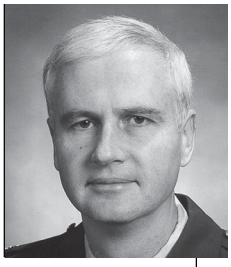
December

1. Data Use, Regional Patient Safety Conference, Ramstein AB, Germany, G Rake.

PROFESSIONAL ACTIVITIES

Official trips

1. January 2006, Institute for Quality in Laboratory Medicine Conference, Atlanta Ga, G Rake.
2. January 2006, TRICARE MHS Conference, Washington DC, G Rake.
3. February 2006, HIMSS Conference, San Diego Calif, J Gray.
4. May 2006, National Patient Safety Foundation Congress, San Francisco Calif, G Rake, M Davis.
5. May 2006, PolyAnalyst Training, VA NCPS, Ann Arbor Mich, J Gray
6. June 2006, AHRQ Turning Research into Programs and Policy, Washington DC, G Rake, P Copeland, M Davis, R Nosek, DoD PSC.
7. June 2006, AAAHC Training, Pittsburg Pa, G Rake
8. June 2006, JCAHO Healthcare Literacy Conference, Chicago Ill, G Rake.
9. August 2006, The Harvard Quality Colloqium, Boston Mass, P Copeland.
10. September 2006, TeamSTEPPS, Madigan AMC, Wash, P Copeland, M Davis
11. October 2006, Combined Forces Pharmacy Seminar, P Hoerner, Atlanta Ga, Presentation "A Summary of Information Submitted to the Department of Defense Patient Safety Center: Findings and Trends of Medication Errors Reported During FY 2005."
12. October 2006, ASHRM Conference, San Diego Calif, P Copeland, M Davis.
13. October 2006, Partnerships in Patient Safety, AHRQ, Rockville Md, G Rake.



Frank T. Flannery, MD, JD
Chair
Date of Appointment — 9 October 1990

DEPARTMENT OF LEGAL MEDICINE

STAFF

Medical:
Frank T. Flannery, MD, JD
Richard L. Granville, MD, JD
William J. Oetgen, MD, MBA
Alfred S. Buck, MD
Susan Freeburn, RN

Legal:
(D) Alan Cash, RN, JD
Jill E. Thach, JD

Administrative:
Kevin Slaton, TSGT, USAF
Herman Furlow, Administrative Assistant
Daniel Wheatley, MS, Statistics Specialist
Mary Ann Millett, Credentials Manager
(A) Amy Wynkoop, Credentials Manager
Patricia Broseker, Administrative Assistant
(D) Mary Conneran, Administrative Assistant
Michael Orlowski, Legal Assistant
(A) Shirin Chase, Credentials Manager

MISSION

The mission of the Department of Legal Medicine includes consultation, education, and research on medicolegal, medical quality assurance, and risk management matters confronting the military, federal agencies, and the civilian sector. The Department's primary responsibility is to meet the informational needs of the Department of Defense (DoD) regarding medical negligence litigation and consequent remedial measures.

IMPACT

The Department of Legal Medicine has maintained and augmented its critical roles in the areas of quality assurance and risk management in providing valuable assistance to the Office of the Assistant Secretary of Defense for Health Affairs (OASD(HA)), the Tricare Management Activity (TMA), and the 3 military services. Three major activities of the Department in 2006 were the continued collection and analysis of risk management data obtained from the Centralized Credentials Quality Assurance System (CCQAS), the analyses of MHS-wide system issues identified in DoD medical malpractice claims and participation in the Maximus External Peer Review Program of the Department of Defense in order to ensure compliance with the statement of work for this important quality management function.

CCQAS was developed over the past 12 years in order to facilitate credentials management in DoD with the goal of speeding deployment and movement of health care providers in the support of military operations. Even today, CCQAS continues to undergo further modification and development. The Department of Legal Medicine participated in 2006 in the development of the newest version of CCQAS 2.8 that includes the privileging module. The Department of Legal Medicine has continued its important role in this process as the DoD component analyzing medical malpractice cases, adverse privileging actions and disability

cases within CCQAS. The analysis and reporting of this information possesses a high degree of military relevance, as it improves the quality of medical care for our soldiers and their families both in peacetime and during major deployments. Especially important is the analysis of data regarding care provided to active duty soldiers. This is done through analyses of Feres bared claims and through analyses of cases of active duty injury identified in the Disability System.

The second major impact area for the Department of Legal Medicine in 2006 was the use of MAXIMUS case reviews for the purposes of analyzing, collating and reporting summary information to the DoD Risk Management Committee in order to identify system issues resulting in medical injury.

The third major impact area for the Department of Legal Medicine in 2006 was its active participation in the analysis and review of several hundred military paid medical malpractice cases. Detailed analysis of various issues including the standard of care, causation and system issues is an important part of this case review process. This effort was performed in coordination with OASD(HA) and TMA. The identification of high risk medical practices and procedures, providing the opportunity to appropriately target quality assurance efforts, has great military relevance in improving the quality of medical care in the military health system.

QUALITY MANAGEMENT/RISK MANAGEMENT/CREDENTIALS MANAGEMENT CONSULTATION

Cases	*Completed*
Military	512
Army (112)	
Navy (133)	
Air Force (47)	
Coast Guard (220)	
Federal	274
DOJ (BOP) (234)	
DOJ (PSOB) (40)	
Civilian	0
Interdepartmental	2
Total	788

The Department of Legal Medicine has provided consultation in the areas of medical, legal, and credentials expertise for DoD and other federal agencies. The highest priority has always been on military relevant DoD projects. First, the Department continued to participate in and provide statistical input and analysis of DoD malpractice information to a number of senior level DoD committees related to quality improvement and risk management. A primary focus of the Department has been an active involvement with the DoD Risk Management Committee chaired by OASD (HA). The Department of Legal Medicine assists OASD (HA) in the analysis of aggregate tri-service malpractice data provided by the services. Also, medical malpractice data from the Department of the Treasury is obtained by the Department of Legal Medicine and reported to that committee and the 3 services to enable DoD to monitor and respond in an appropriate, timely manner to paid medical malpractice cases. The Department of Legal Medicine also participates in the TRICARE Clinical Quality Forum. Members of the Department periodically provide briefings to this senior level DoD committee regarding our activities at AFIP to include CCQAS data, malpractice case information, Treasury data, and Feres-barred (active duty) cases. Finally the Department has provided ongoing assistance in the further development of the Centralized Credentials Quality Assurance System (CCQAS) of the Department of Defense through participation on various committees. The structure and content of the Risk Management, Disability and Adverse Actions modules of this large database, as well as the ad hoc and standard reporting features, continued to be reviewed by the staff of the Department of Legal Medicine in 2006.

Second, the Department of Legal Medicine has an important role with the Maximus External Peer Review Program (Maximus). Paid medical malpractice cases, which meet the standard of care at the offices of the respective Surgeons General, have been reviewed by Maximus as an external entity under contract to DoD. The Department of Legal Medicine has an important role in insuring that all medical-legal review aspects conform to the particulars of the statement of work so that the contractor adequately addresses the issues of standard of care,

causation, and system issues. The Department analyzes the cases and provides feedback to OASD(HA).

Third, the Department of Legal Medicine has also continued its valuable role of monitoring DoD malpractice payments with the Department of the Treasury. The Financial Management Service modified its database to facilitate providing this information. The Department of Legal Medicine staff worked closely with the Treasury Department to ensure continuation of the important function. The Department of Legal Medicine on a periodic basis collects and analyzes financial reports from the Department of the Treasury in order to assist OASD (HA) in monitoring DoD medical malpractice payments and trends. This project assumes great importance because these figures are used for comparison purposes with the larger database in the private sector. Our Treasury data reports provide timely notification to the 3 Offices of the Surgeons General of newly paid medical malpractice cases so that they can meet their statutory requirement of reporting to the National Practitioner Data Bank in a timely fashion.

Fourth, the Department also analyzes the Risk Management, Disability, and the Adverse Action modules of the Centralized Credentials Quality Assurance System. In 2006, members of the Department of Legal Medicine actively participated on the CCQAS Functional Work Group with the military services in the further refinement of these modules in order to further enhance the usefulness of the reports which can be produced from these data bases. Further development of these modules will be necessary on an ongoing basis.

Fifth, in the area of credentials management, the Department in 2006 has continued its valuable DoD credentials work through a sharing agreement with the Navy Recruiting Command by verifying the credentials and claims histories of health care providers who have applied to be accessioned as military personnel for the Department of the Navy. The Department has also continued its work through its sharing agreement with the United States Coast Guard in the evaluation and prime source verification of the credentials of its health care providers. Finally, the Department has continued its credentials management work through a sharing agreement with the Department of Justice for health care providers in that federal agency.

Finally, case review for other federal agencies, according to the Department's mission statement through sharing agreements, has continued in 2006. Currently, active sharing agreements include those with the Department of Health and Human Services Inspector General's Office, the Bureau of Prisons' (General Counsel), and the Public Safety Officer's Benefit Program (PSOB) for the Department of Justice. The PSOB cases are reviewed to determine whether injured law enforcement officers or public safety officers are eligible to obtain benefits through that program after appropriate evaluation. These medical-legal reviews by Legal Medicine are important to the agencies involved in determining the standard of care, causation, and injury elements of these health care related cases.

Related to the consultation mission of the Department of Legal Medicine is the maintenance of the repository at Forest Glen of over 22,000 closed DoD medical malpractice cases. This DoD-wide repository has existed since 1990. In 2006, the Department accessioned and catalogued 1013 closed Department of Defense medical malpractice cases including risk management closed case files from the Office of the Air Force Surgeon General. In 2006 the Department of Legal Medicine, in conjunction with Department of Repository and Research Services at AFIP, continued work with an outside contractor to image medical malpractice claim files in the repository. Almost 12,000 cases have been imaged to date. The imaging will preserve the claim files in an electronic format while allowing a decrease in use of space for storing files. The repository has proven to have high military relevance since the 3 Offices of the Surgeons General often require these records in order to determine standard of care in paid medical malpractice cases. Additionally, the repository has been utilized in the past in an ongoing collaborative relationship between the American Society of Anesthesiology and the Department of Legal Medicine in order to reduce liability for anesthesia providers and improve patient care.

EDUCATION

The Department has again this year produced its annual risk management journal, Legal Medicine. By completing a quiz, physicians earn 5 category I CME credits. The credit is provided free of charge to military and full-time federal physicians. Approximately 20,000 CME credits were awarded in calendar year 2006. A substantial portion of the credits were awarded to military and federal civilian physicians.

Legal Medicine has proven military relevance, especially for remotely deployed personnel who are unable to attend conferences. The Legal Medicine evaluation survey shows that over 98%

of all subscribers affirmatively state that Legal Medicine is relevant to their practice of medicine. The Department sends Legal Medicine to military medical libraries and to each military treatment facility to insure its broadest dissemination.

The Department also provided medical-legal training to a number of USUHS and Georgetown medical students.

Faculty Appointments

F Flannery, Clinical Assistant Professor, Georgetown University Medical School

Presentations

1. April 2006: Georgetown University, Washington, DC, "Medical malpractice update," F Flannery.
2. March 2006: Washington, DC, DoD Risk Management Committee, "Statistical presentation of DoD malpractice data using CCQAS," R Granville.
3. June 2006: Washington, DC, DoD Risk Management Committee, "Overview of malpractice claims in CCQAS," R Granville.
4. November 2006: Columbia, SC, "Credentialing in the Bureau of Prisons," S Freeburn.
5. December 2006: Washington, DC, "Analysis of system issues in DoD malpractice claims," R Granville.

RESEARCH

Publications

1. Flannery F. Recent court decisions. *Legal Medicine*. 2006:6-15.
2. Lester A. Standard of care and the cesarean delivery. *Legal Medicine*. 2006:16-24.
3. Hurwitz R. Med/Mal 101: the expert medical witness. Legal Medicine. 2006:25-33.
4. Oetgen M. Avoiding medical malpractice: lessons learned from the orthopedic literature. *Legal Medicine*. 2006:34-40.
5. Van Ruiswyk J, Agha Z. Physician-patient e-mail. *Legal Medicine*. 2006:41-47.
6. Westgate H. Liability for EMS field providers. *Legal Medicine*. 2006:48-54.

PROFESSIONAL ACTIVITIES

Official Trips

1. February 2006, National Credentialing Forum, Palm Springs, Calif, S Freeburn (ARP.)
2. September 2006, Credentials Forum, Atlanta, Ga, S Freeburn (ARP).

Editorial Work

1. *Federal Practitione*r, FT Flannery
2. *Military Medicine*, RL Granville

DIRECTORATE OF ADVANCED PATHOLOGY

Sumitra Parekh
COL, MC, USA
Director, Advanced Pathology

GROUP 1—
- Genitourinary Pathology (Nephropathology)
- Gynecologic & Breast Pathology
- Neuropathology (Ophthalmic Pathology)

GROUP 2—
- Dermatopathology
- Soft Tissue Pathology
- Oral & Maxillofacial Pathology
- Endocrine & Otorhinolaryngic/Head-Neck Pathology

GROUP 3—
- Hematopathology
- Veterinary Pathology
- Environmental & Infectious Disease Pathology

GROUP 4—
- Hepatic & Gastrointestinal Pathology
- Pulmonary & Mediastinal Pathology

ADVANCED PATHOLOGY

GROUP 1

Genitourinary Pathology (Nephropathology)

Gynecologic & Breast Pathology

Neuropathology (Ophthalmic Pathology)

Isabell A. Sesterhenn, MD
Chair
Date of Appointment — May 2004

DEPARTMENT OF GENITOURINARY PATHOLOGY AND NEPHROPATHOLOGY

STAFF

Medical

Isabell A. Sesterhenn, MD
Charles J. Davis, Jr, MD, ARP
Raj Shekar, COL, MC, USA, Staff Pathologist
William Winecoff, COL, MC, USA
(D) Sharda G. Sabnis, MD (Nephropathology)

Scientific

Frank A. Avallone, Research Biologist
Denise Young, Histopathology Technologist, ARP
(D) Rex C. Hartzoge, Histopathology Technologist
Bungo Furusato, MD, Fellow (GU Pathology)
Anandita Datta, MD, (Nephropathology)
(A) Stacy Tamer, Histopathology Technologist

Administrative

Renee Upshur-Tyree, Administrator
(D) Annette D. Allen, Secretary, VA
Vera Pettus, Medical Secretary
(D) Paulette Crampton, Secretary (Nephropathology)

IMPACT

The Department's relevance to the Institute can be seen in the work of the GU laboratory's provision of immunohistochemistry, immunofluorescence and in situ hybridization for this and for 10 other departments of the AFIP and for the Urology and Pathology Services of Walter Reed, Malcolm Grow, Ireland Medical Center, OAFME and the Naval Medical Center Camp Pendleton.

The Department's relevance to the military in general is illustrated in our role as the pathology center for the Center for Prostate Disease Research – a tri-service prostate specimen repository. This was mandated by Congress as authorized in Public Law 102-172. In this capacity our department is frequently requested to provide personal consultations to members of Congress and high ranking military officers.

The Department's contributions to civilian medicine, as well as the military's entail not only our consultation work but our service as the WHO Collaboration Center for Histological Classification of Tumors of Urinary Tract and Male Sex Organs. In 2004, the WHO Classification of Tumours: Pathology and Genetics of the Urinary System and Male Genitourinary System was published. Members of the staff contributed as authors and co-editors to this book. These books provide criteria for the diagnosis of tumors.

The GU Pathology Department collaborated with the Center of Prostate Disease Research on Gene expression profiling in formalin fixed paraffin embedded specimens. This methodology

will greatly enhance the utilization of specimens representing malignant and nonmalignant diseases of the genitourinary tract. The GU Registries at the AFIP are in a unique position to contribute to molecular pathology with its vast repository of typical and unusual diseases.

The nephropathology division staff served as the primary pathologist in most of the cases, performing light, immunofluorescence and electron microscopy to render quality diagnosis. Most of the cases are received with request for performing light, electron and/or immunofluorescence microscopy essential in the final diagnosis. This includes time consuming research for clinical data and discussion with the clinicians or contributing pathologists to arrive at the final diagnosis. The staff uses immunohistochemistry (peroxidase method) when tissue for immunofluorescence microscopy is inadequate. Among the 399 human kidney biopsies, 312 (78%) were from federal institutions and 87 (22%) were from civilian contributors. The average case turnaround (TAT) was 7 days.

CONSULTATION

During the year the number of consultations on difficult kidney tumors has increased. The number of consultation on bladder tumors in young patients is increasing. However, most of our surgical consultations were on prostate specimens, many of which are from patients in their forties and fifties.

Because of screening programs, we are seeing biopsies on totally asymptomatic patients who are found to have elevated PSA, a nodule on digital rectal examination, or an abnormal ultrasound. These biopsies, especially in a group of young patients from whom 6 or more biopsy specimens were taken, have led to problems in interpretation because we encounter changes not seen before. The major problem in these cases is whether the carcinoma represents latent cancer (prostatic cancer found in patients who die of other causes). The problem is compounded by the fact that many patients have been pretreated with a variety of new drugs. Most of our prostate biopsies are received from active members of the military and VA.

The overall number of consultations was stable; 26% of these were civilians and 74% were military and VA cases. In 2005, 60% of the cases required either a diagnostic change or were submitted without a contributor's diagnosis. A minor diagnostic change with respect to a pathological disagreement can have major impact on clinical management.

DIAGNOSTIC CONSULTATION

Genitourinary Pathology

Cases	*Completed*
Military	1,093
Army (516)	
Navy (236)	
Air Force (212)	
Federal	1,712
VA (1562)	
OFA/USPHS (3)	
Civilian (803)	862
Interdepartmental	197
Total	3,864

Nephropathology

Cases	*Completed*
Military	207
Army (129)	
Navy (61)	
Air Force (10)	
Federal	129
VA (124)	
OFA/UPHS (9)	
Civilian (86)	93
Interdepartmental	44
Total	473

The department provided telepathology consultation on 52 cases (8.8% of all telepathology cases) to national and international sites including military. Half of the telepathology cases are military.

1 National and International civilian contributors

1 VA

50 Military

Our department made no change in the contributor's diagnosis in 1282 cases (2/3) of which were for confirmation), a minor change in diagnosis in 1443 cases, and a major change in diagnosis in 113 cases and received 440 cases with no contributor diagnosis.

The Division of Nephropathology interpreted 436 renal biopsies including electron microscopy. 78% of these were military and VA and 22% were civilian cases. In 328 cases there was no diagnosis by the contributor. In 85 cases no change in the contributor's was made and in 6 cases a minor change in the diagnosis was made.

Quality Assurance:

We participated in 2 proficiency tests in immunohistochemistry and 2 tests in in-situ hybridization.

The genitourinary laboratory processed 104 total prostatectomies as whole mounts resulting in 1248 large and 624 small blocks. The department cut overall 1433 blocks with 6144 unstained sections and 5389 H&E slides. We performed 7442 immunohistochemical stains, 792 in situ hybridization for HPV and interphase cytogenetics. We cut 10,121 slides on 628 blocks for 4 departments resulting in 4577 immunofluorescence stains and 628 H&E stains. For special projects in conjunction with the NNMC we cut 1200 slides and for special project with the Epidemiology Department at the NCI we processed 800 specimens. For the Center for Prostate Disease Research we processed 90 cases with 2 frozen blocks each resulting in 3690 slides.

Faculty Appointments:

IA Sesterhenn

1. Assistant Professor of Pathology, Uniformed Services University of the Health Sciences, Bethesda, Md.
2. Member, United States Military Cancer Institute, Walter Reed Army Medical Center, Washington, DC, 2002-to present.

CJ Davis

1. Assistant Professor of Pathology, Uniformed Services University of the Health Sciences, Bethesda, Md.
2. Member, United States Military Cancer Institute, Walter Reed Army Medical Center, Washington, DC, 2002-to present.

Offices and Committee Membership in National and International Societies:

IA Sesterhenn

1. Member of International Working Group on Bladder Cancer
2. Member of WHO/SIU Bladder Consensus Panel
3. Member of the German Prostate Cancer Consortium
4. Member of the ISUP Grading Committee

Deployments:

March 2006: Walter Reed/National Naval Medical Center, 4 lectures, Kidney and Bladder and Testis and Prostate.

EDUCATION

Presentations and Seminars

Department staff participated in 16 seminars, workshops, and lectures, and continued their affiliations with WRAMC, National Naval Medical Center and USUHS by lecturing to pathologists, residents, and fellows.

Two internet based courses (bladder and penis) are available on the web as are virtual slides on 150 entities of the genitourinary tract.

Courses

1. April 2006: AFIP, 14th Anatomic Pathology Course (3 hrs) .

2. April 2006: Nephropathology Microscope Workshop (3 days).
3. July 2006: 5-day Annual Urological Pathology Course (48.5 hrs) Total Man-hours – 18,000.

Presentations: (Military and/or Civilians)

1. January, 2006: Savannah, Ga, 53rd Annual James C. Kimbrough Urological Seminar, "Evaluation of quantitative expression of PTEN tumor suppressor in benign and neoplastic prostate epithelial cells for association with clinico-pathologic features," I Rosner, L Ravindranath, B Furusato, Y Chen, J Cullen, IA Sesterhenn, DG McLeod, S Srivastava, G Petrovics.
2. February 2006: Atlanta, Ga, 95th USCAP Meeting, "Evaluation of serum SELDI-TOF proteomic information and tumor volume in prostate cancer patients," B Furusato, LL Banez, P Prasan, Y Chen, A Ali, JW Moul, DG McLeod, S Srivastava, IA Sesterhenn.
3. February 2006: Atlanta, Ga, 95th USCAP Meeting, "Podoplanin expression in prostate," IA Sesterhenn, CJ Davis, B Furusato, J Miki, H Takahashi, DG McLeod.
4. February 2006: Atlanta, Ga, 95th USCAP Meeting, "Does quantitative gene expression analysis of androgen receptor in benign and neoplastic prostate cancer cells predict PSA recurrence?" I Rosner, L Ravindranath, B Furusato, Y Chen, I Sesterhenn, DG McLeod, S Srivastava, G Petrovics.
5. February 2006: Atlanta, Ga, 95th USCAP Meeting, "Gene expression/biochemical pathway signatures of benign prostatic glands of patients with well and poorly differentiated carcinomas," B Furusato, S Shaheduzzaman, V Parachury, G Petrovics, M Nau, M Vahey, DG McLeod, S Srivastava, IA Sesterhenn.
6. February 2006: Atlanta, Ga, 95th USCAP Meeting, "Pathology of 68 renal epithelial-stromal tumors," CJ Davis, I Sesterhenn.
7. February 2006: Atlanta, Ga, 95th USCAP Meeting, "M2A antigen (Podoplanin) distribution in prepubertal and adult testes and testicular tumors," IA Sesterhenn, CJ Davis, B Furusato.
8. February 2006: Atlanta, Ga, 95th USCAP Meeting, "Do patients with small tumor volume have prostate-specific antigen expressing epithelial cells in blood?" CL Gao, B Furusato, A Allen, J Cullen, L Banez, A Ali, CJ Davis, JW Moul, DG McLeod, S Srivastava, IA Sesterhenn.
9. February 2006: San Francisco, Calif, ASCO Prostate Cancer Symposium, "Quantitative features of a common TMPRSS2-ERG fusion transcript in prostate cancer," J Cullen, G Petrovics, B Furusato, CL Gao, L Ravindranath, C Cook, Y Chen, A Dobi, I Sesterhenn, DG McLeod, S Srivastava.
10. February 2006: San Francisco, Calif, ASCO Prostate Cancer Symposium, "Magnetic resonance microscopy of radical prostatectomies at 7 Tesla," B Furusato, K Potter , R Becker, S Srivastava, DG McLeod, I Sesterhenn.
11. March 2006: Bethesda Md, Anatomic Pathology Course, "Pathology of kidney tumors," "Pathology of bladder tumors," "Pathology of prostate tumors," "Pathology of testis tumors," CJ Davis, IA Sesterhenn.
12. April 2006: Washington, DC, 97th Annual Meeting American Association for Cancer Research, "Quantitative tissue PSA mRNA expression as a predictor of outcome in radical prostatectomy and alterations in the androgen signaling pathway," J Sterbis, C Gao, B Furusato, J Cullen, Y Chen, L Ravindranath, DG McLeod, IA Sesterhenn, G Petrovics, S Srivastava.
13. April 2006: Washington, DC, 97th Annual Meeting American Association for Cancer Research, "ETS-related gene (ERG): a frequent proto-oncogene expression alteration in prostate cancer with potentials in diagnosis and prognosis," G Petrovics, S Shaheduzzaman, V Srikantan, B Furusato, IA Sesterhenn, DG McLeod, S Srivastava.
14. April 2006: Washington, DC, 97th Annual Meeting American Association for Cancer Research, "Lactotransferrin: a frequent expression down-regulation in prostate cancer," S Shaheduzzaman, A Vishwanath, LL Bañez, B Furusato, M Nau, L Ravindranath, Y Chen, Y Chen, J Cullen, IA Sesterhenn, M Vahey, DG McLeod, G Petrovics, V Srikantan, S Srivastava.
15. April 2006: Washington, DC, 97th Annual Meeting American Association for Cancer Research, "Epithelial cell transcriptome of poorly and moderately differentiated prostate cancers," S Shaheduzzaman, CL Gao, Z Wang, B Furusato, G Petrovics, V Srikantan, L Ravindranath, M Nau, Y Chen, DG McLeod, IA Sesterhenn, M Vahey, S Srivastava.
16. May 2006: Atlanta, Ga, AUA 2006 Annual Meeting, "Quantitative gene expression ratios

of androgen receptor mRNA in benign and neoplastic prostate epithelial cells correlate with PSA recurrence after radical prostatectomy," I Rosner, L Ravindranath, B Furusato, Y Chen, D Osborn, J Cullen, IA Sesterhenn, DG McLeod, S Srivastava, G Petrovics.

17. May 2006: Atlanta, Ga, AUA 2006 Annual Meeting, "Lactotransferrin: a frequent expression down-regulation in prostate cancer," LL Banez, S Shaheduzzaman, A Vishwanath, B Furusato, M Nau, L Ravindranath, Y Chen, Y Chen, J Cullen, IA Sesterhenn, M Vahey, DG McLeod, G Petrovics, V Srikantan, S Srivastava.
18. May 2006: Atlanta, Ga, AUA 2006 Annual Meeting, "The relationship of preoperative PSA levels to prostatic weight and tumor size," B Furusato, I Rosner, D Osborn, J Cullen, Y Chen, IA Sesterhenn, CJ Davis, DG McLeod.
19. May 2006: Atlanta, Ga, AUA 2006 Annual Meeting, "Novel telomerase-immortalized primary prostate epithelial cell lines retain biological features of benign and cancerous prostate specimens," Y Gu, H Li, J Miki, KH Kim, B Furusato, IA Sesterhenn, WS Chu, DG McLeod, C Ewing, S Srivastava, W Isaacs, J Rhim.
20. May 2006: Atlanta, Ga, AUA 2006 Annual Meeting. "HIPPI expression associates with prostate cancer prognosis," CL Gao, S Shaheduzzaman, G Petrovics, B Furusato, M Nau, L Ravindranath, Y Chen, V Srikantan, DG McLeod, M Vahey, IA Sesterhenn, S Srivastava.
21. May 2006: Bethesda, Md, USUHS Research Day, "ETS-related gene (ERG), a frequent proto-oncogene expression alteration in prostate cancer with potentials in diagnosis and prognosis," G Vaidyanathan, G Petrovics, S Shaheduzzaman, V Srikantan, B Furusato, IA Sesterhenn, DG McLeod, S Srivastava.
22. May 2006: Bethesda, Md, USUHS Research Day, "Epithelial cell transcriptome of poorly and moderately differentiated prostate cancers," CL Gao, S Shaheduzzaman, Z Wang, B Furusato, G Petrovics, V Srikantan, L Ravindranath, M Nau, Y Chen, DG McLeod, IA Sesterhenn, M Vahey, S Srivastava.
23. May 2006: Bethesda, Md, USUHS Research Day"Novel telomerase-immortalized primary prostate epithelial cell lines retain biological features of benign and cancerous prostate specimens," Y Gu, H Li, J Miki, KH Kim, B Furusato, IA Sesterhenn, WS Chu, DG McLeod, C Ewing, S Srivastava, W Isaacs, J Rhim.
24. May 2006: Bethesda, Md, USUHS Research Day, "Quantitative gene expression ratios of androgen receptor mRNA in benign and neoplastic prostate epithelial cells correlate with PSA recurrence after radical prostatectomy," J Cullen, I Rosner, L Ravindranath, B Furusato, Y Chen, D Osborn, IA Sesterhenn, DG McLeod, S Srivastava, G Petrovics.
25. May 2006: Bethesda, Md, USUHS Research Day, "The relationship of preoperative PSA levels to prostatic weight and tumor size" B Furusato, I Rosner, D Osborn, J Cullen, Y Chen, IA Sesterhenn, CJ Davis, DG McLeod.
26. May 2006: Bethesda, Md, USUHS Research Day, "Effects and mechanisms of frequent downregulation of lactotransferrin (LTF) in prostate cancer" S Shaheduzzaman, A Vishwanath, B Furusato, J Cullen, Y Chen, L Bañez, KH Kim, A Mohamed, V Srikantan, IA Sesterhenn, DG McLeod, M Vahey, G Petrovics A Dobi, S Srivastava.
27. May 2006: Bethesda, Md, USUHS Research Day, "Regulation of apoptosis by PCGEM1, a prostate specific and prostate cancer-associated non-coding gene," G Petrovics, L Ravindranath, IA Sesterhenn, DG. McLeod, S Srivastava.
28. July 2006: Chicago, Ill, AACR Special Meeting, "TMPRSS2-ERG fusion transcript has diagnostic and prognostic potential in prostate cancer patients," G Petrovics, S Shaheduzzaman, B Furusato, A Dobi, L Ravindranath, C Cook, Y Chen, V Srikantan, J Cullen, IA Sesterhenn, DG McLeod, S Srivastava.
29. July 2006: Washington, DC, UICC World Cancer Congress 2006"Characterization of telomerase-immortalized primary non-malignant and malignant tumor-derived human prostate epithelial cell cultures," Y Gu, H Li, J Miki, KH Kim, B Furusato, I A Sesterhenn, WS Chu, DG McLeod, C Ewing, S Srivastava, W Isaacs, J Rhim.
30. July 2006: Washington, DC, UICC World Cancer Congress 2006, "ETS-related gene (ERG), a frequent proto-oncogene expression alteration in prostate cancer with potentials in diagnosis and prognosis," S Shaheduzzaman, G Petrovics, V Srikantan, B Furusato, IA Sesterhenn, DG McLeod, S Srivastava.
31. July 2006: Washington, DC, UICC World Cancer Congress 2006, "Lactotransferrin: a frequent expression down-regulation in prostate cancer," S Shaheduzzaman, L Bañez, A Vishwanath, B Furusato, M Nau, L Ravindranath, Y Chen, Y Chen, J Cullen, IA Sesterhenn, M Vahey, DG McLeod, G Petrovics, V Srikantan, S Srivastava.
32. September 2006: Montreal Canada, 100th IAP Congress, "Does labeling of prostate biopsies in a site specific manner improve margin rate at radical prostatectomy as com-

pared to labeling grouped by side only?" E Richter, J Moncur, DG McLeod, IA Sesterhenn.

33. September 2006: Montreal Canada, 100th IAP Congress, "Renal epithelial-stromal tumors: a review of 68 cases," CJ Davis, IA Sesterhenn.
34. September 2006: Montreal Canada, 100th IAP Congress, "requency of lymphatic invasion by prostatic carcinoma in prostatectomies," IA Sesterhenn, D Cordaro, CJ Davis, B Furusato.
35. September 2006: Montreal Canada, 100th IAP Congress, "The relationship of preoperative PSA levels to prostate weight and tumor size," B Furusato, I Rosner, D Osborn, J CullenJ, Y Chen, IA Sesterhenn, CJ Davis, DG McLeod.
36. October 2006: Georgetown University, Grand Rounds.
37. October 2006: Caracas, Venezuela, Venezuela Oncology Society, "Prognostic factor in bladder cancer," Sesterhenn, IA.
38. November 2006: Cape Town, South Africa, SIU Meeting, "Pathology of 68 renal epithelial-stromal tumors," CJ Davis, IA Sesterhenn.
39. November 2006: Cape Town, South Africa, SIU Meeting. "The relationship of preoperative PSA levels to prostatic weight and tumor size," B Furusato, IA Sesterhenn, I Rosner, D Osborn, J Cullen, Y Chen, CJ Davis, DG McLeod.
40. November 2006: Cape Town, South Africa, SIU Meeting, "Malignant mesotheliomas of tunica vaginalis," CJ Davis, IA Sesterhenn.
41. November 2006: Cape Town, South Africa, SIU Meeting, "Frequency of lymphatic invasion in prostatectomies for prostate cancer," IA Sesterhenn, D Cordaro, CJ Davis, B Furusato.
42. November 2006: Cape Town, South Africa, SIU Meeting, "Follow-up on patients with small prostate cancer following radical prostatectomy at Walter Reed Army Medical Center,"B Furusato, D Osborn, I Rosner, J Cullen, Y Chen, CJ Davis, JW Moul, DG McLeod, IA Sesterhenn.
43. November 2006: Cape Town, South Africa, SIU Meeting, "M2A antigen (Podoplanin) distribution in prepubertal and adult testes and testicular tumors," IA Sesterhenn, CJ Davis, B Furusato.
44. November 2006: Cape Town, South Africa, SIU Meeting, Co-chaired session on prostate cancer, IA Sesterhenn.
45. December 2006: Miami Fla, 15TH Annual Meeting Society for Basic Urological Research, Membrane biology in basic urologic research: molecular landscaping in normal physiology and pathophysiology, "Effects and mechanisms of frequent downregulation of lactotransferrin (LTF) in prostate cancer," S Shaheduzzaman, A Vishwanath, B Furusato, J Cullen, Y Chen, L Bañez, KH Kim, A Mohamed, V Srikantan, IA Sesterhenn, DG McLeod, M Vahey, G Petrovics A Dobi, S Srivastava.
46. December 2006: Miami Fla, 15TH Annual Meeting Society for Basic Urological Research, Membrane biology in basic urologic research: molecular landscaping in normal physiology and pathophysiology, "Quantitative levels of TMPRSS2-ERG fusion transcripts reflect pathological stage of prostate cancer," T Sreenath, G Petrovics, S Shaheduzzaman, B Furusato, A Dobi, L Ravindranath, C Cook, Y Chen, V Srikantan, J Cullen, IA Sesterhenn, DG McLeod, S Srivastava.
47. December 2006: Bethesda, Md, SUO/NCI Annual Meeting, "Quantitative features of a common TMPRSS2-ERG fusion transcript in prostate cancer," G Petrovics, T Sreenath, S Shaheduzzaman, B Furusato, A Dobi, L Ravindranath, C Cook, Y Chen, V Srikantan, J Cullen, IA Sesterhenn, DG McLeod, S Srivastava.
48. December 2006: Bethesda, Md, SUO/NCI Annual Meeting, "Quantitative levels of TMPRSS2-ERG fusion transcripts reflect pathological stage of prostate cancer," B Furusato, G Petrovics, S Shaheduzzaman, T Sreenath A Dobi, L Ravindranath, C Cook, Y Chen, V Srikantan, J Cullen, IA Sesterhenn, DG McLeod, S Srivastava.
49. December 2006: Bethesda, Md, SUO/NCI Annual Meeting, "Quantitative tissue PSA mRNA expression as a predictor of outcome in radical prostatectomy and alterations in the androgen signaling pathway," J Sterbis, C Gao, B Furusato, J Cullen, Y Chen, L Ravindranath, DG McLeod, IA Sesterhenn, G Petrovics, S Srivastava.

Trainees:

Two urology residents from WRAMC spent 2 months each in the department and additional time, as required, since they are involved in joint research project.

We had 11 federal employees and 2 non-federal trainee for a total 237 days.

Educational Aides:

The computer laboratory at the Annual FK Mostofi Urologic Pathology and Radiologic Course includes 150 virtual slides on diseases of the genitourinary tract in addition to 2000 digital images. The course participants received discs with images with the most important entities of the GU tract. The handouts include photomicrographs.

RESEARCH

Publications

Journal Articles:

1. Davis CJ, Barton JH, Sesterhenn IA. Cystic angiomyolipoma of he kidney: a clinicopathologic desription of 11 cases. *Mod Pathol*. 2006 May;19(5):669-674.
2. De Marzo AM, Platz EA, Epstein JI, Ali T, Billis A, Chan TY, Cheng L, Datta M, Egevad L, Ertoy-Baydar D, Farre X, Fine SW, Iczkowski KA, Ittmann M, Knudsen BS, Loda M, Lopez-Beltran A, Magi-Galluzzi C, Mikuz G, Montironi R, Pikarsky E, Pizov G, Rubin MA, Samaratunga H, Sebo T, Sesterhenn IA, Shah RB, Signoretti S, Simko J, Thomas G, Troncoso P, Tsuzuki TT, van Leenders GJ, Yang XJ, Zhou M, Figg WD, Hoque A, Lucia MS. A working group classification of focal prostate atrophy lesions. *Am J Surg Pathol*. 2006 Oct;30(10):1281-1291. Erratum in: Am J Surg Pathol. 2006 Nov;30(11):1489.
3. Gu Y, Li H, Miki J, Kim KH, Furusato B, Sesterhenn IA, Chu WS, McLeod DG, Srivastava S, Ewing CM, Isaac WB, Rhim JS. Phenotypic characterization of telomerase-immortalized primary non-malignant and malignant tumor-derived human prostate epithelial cell lines. *Exp Cell Res*. 2006 Apr 1;312(6):831-843.
4. Henderson CG, Ahmed AA, Sesterhenn I, Belman AB, Rushton HG. Enucleation for prepubertal Leydig cell tumor. *J Urol*. 2006 Aug;176(2):703-705.
5. Kwee SA, Wei H, Sesterhenn I, Yun D, Coel MC. Localization of primary prostate cancer with dual-phase 18F-fluorocholine PET. *J Nucl Med*. 2006 Feb;47(2):262-269.
7. Patrick DJ, Fitzgerald SD, Sesterhenn IA, Davis CJ, Kiupel M. Classification of canine urinary bladder urotyhelial tumours based on the World Health Organization/International Society of Urological Pathology consensus classification. *J Comp Pathol*. 2006 Nov;135(4):190-199.
8. Sun M, Srikantan V, Ma L, Li J, Zhang W, Petrovics G, Makarem M, Strovel JW, Horrigan G, Augustus M, Sesterhenn IA, Moul JW, Chandrasekharappa S, Zou Z, Srivastava S. Characterization of frequently deleted 6q locus in prostate cancer. *DNA Cell Biol*. 2006 Nov;25(11):597-607.
9. Wong-You-Cheong JJ, Woodward PJ, Manning MA, Ssterhenn IA. From the Archives of the AFIP: neoplasm of the urinary bladder: radiologic-pathologic correlation. *RadioGraphics*. 2006 Mar-Apr;26(2):553-580. Review.

Abstracts

1. Banez LL, Shaheduzzaman S, Vishwanath A, Furusato B, Nau M, Ravindranath L, Chen Y, Chen Y, Cullen J, Sesterhenn I, Vahey M, McLeod DG, Petrovics G, Srikantan V, Srivastava S. Lactotransferrin: A Frequent Expression Down-Regulation in Prostate Cancer. *J Urol*. 2006;175:141. Abstr 435.
5. Davis CJ and Sesterhenn, IA. Pathology of 68 renal epithelial-stromal tumors. *Urology*. 2006;68 Suppl 5A.227,UP-01,15.
3. Davis CJ, Sesterhenn I. Pathology of 68 renal epithelial-stromal tumors. *Lab Invest*. 2006:86:134A. Abstr. 614.
4. Davis CJ, Sesterhenn IA Malignant mesotheliomas of Tunica Vaginalis. *Urology*. 2006;68 Suppl 5A.120,MP-1116.
5. Davis, CJ and Sesterhenn IA. Renal epithelial-stromal tumors: a review of 68 cases. *Mod Pathol*. 2006;19:80 Abstr 362.
6. Furusato B, Banez LL, Prasan P, Chen Y, Ali A, Moul,JW, McLeod DG, Srivastava S, Sesterhenn IA. Evaluation of serum SELDI-TOF proteomic information and tumor volume in prostate cancer patients. *Lab Invest*. 2006:86:137A. Abstr. 626.
7. Furusato B, Rosner I, Osborn D, Cullen J, Chen Y, Sesterhenn IA, Davis CJ, McLeod, DG. The Relationship of preoperative PSA levels to prostatic weight and tumor size. *J Urol*. 2006;175:278 Abstr 863.
8. Furusato B, Rosner I, Osborn D, Cullen J, Chen Y, Sesterhenn IA, Davis CJ McLeod DG. The Relationship of preoperative PSA levels to prostate weight and tumor size. *Mod Pathol*. 2006;19:82 Abstr 308.

9. Furusato B, Osborn D, Rosner I, Cullen J, Chen Y, Davis CJ, Moul JW, McLeod DG Sesterhenn IA. Follow-up On Patients With Small Prostate Cancer Following Radical Prostatectomy At Walter Reed Army Medical Center. Urology. 2006;68 Suppl 5A.120,MP-1020.
10. Furusato B Sesterhenn IA, Rosner I, Osborn D, Cullen J, Chen Y, Davis CJ McLeod DG. The Relationship of Preoperative PSA Levels to Prostatic Weight and Tumor Size. Urology 2006;68 Suppl 5A.272,UP-02,65
11. Furusato B, Shaheduzzaman S, Parachury V, Petrovics G, Nau M, Vahey M, McLeod DG, Srivastava S Sesterhenn I. Gene expression / biochemical pathway signatures of benign prostatic glands of patients with well and poorly differentiated carcinomas. Lab Invest. 2006:86:137A. Abstr 627.
12. Gao CL, Furusato B, Allen A, Cullen J. Banez L, Ali A, Davis CJ, Moul JW, McLeod DG, Srivastava S, Sesterhenn IA. Do patients with small tumor volume have prostate-specific antigen expressing epithelial cells in blood? *Lab Invest.* 2006:86:137A. Abstr. 630.
13. Gao CL, Shaheduzzaman S, Petrovics G, Furusato B, Nau M, Ravindranath L, Chen Y, Srikantan V, McLeod DG, Vahey M, Sesterhenn IA, Srivastava S. HIPPI Expression Associates with Prostate Cancer Prognosis. J Urol. 2006;175:264. Abstr 820.
14. Gu Y, Li H, Miki J, Kim KH, Furusato B, Sesterhenn IA, Chu WS, McLeod DG, Ewing C, Srivastava S, Isaacs W, Rhim J. Novel telomerase-immortalized primary prostate epithelial cell lines retain biological features of benign and cancerous prostate specimens. *J Urol*. 2006;175:81 Abstr 245.
15. Petrovics G, Shaheduzzaman S, Srikantan V, Furusato B, Sesterhenn IA, McLeod DG, Srivastava S. *ETS*-Related gene (*ERG*), a frequent proto-oncogene expression alteration in prostate cancer with potentials in diagnosis and prognosis. Proceedings of the 97th Annual Meeting American Association for Cancer Research, Abst 06-AB-2515.
16. Richter E, Moncur J, McLeod DG, Sesterhenn IA. Does labeling of prostate biopsies in a site specific manner improve margin rate at radical prostatectomy as compared to labeling grouped by side only? *Mod Pathol*. 2006;19:87 Abstr 392.
17. Richter E, Moncur J, McLeod DG, Sesterhenn IA. Does labeling of prostate biopsies in a site specific manner improve margin rate at radical prostatectomy as compared to labeling grouped by side only? *Urology*. 2006;68 Suppl 5A:24 PD-07, 03.
18. Rosner I, Ravindranath L, Furusato B, Chen Y, Osborn D, Cullen J, Sesterhenn I, McLeod DG, Srivastava S, Petrovics G. Quantitative gene expression ratios of androgen receptor mRNA in benign and neoplastic prostate epithelial cells correlate with PSA recurrence after radical prostatectomy. *J Urol*. 2006;175:384 Abstr 1193.
19. Rosner I, Ravindranath L, Furusato B, Chen,Y, Sesterhenn I, McLeod DG, Srivastava S, Petrovics G. Does quantitative gene expression analysis of androgen receptor in benign and neoplastic prostate cancer cells predict PSA recurrence? *Lab Invest*. 2006:86:158A. Abstr. 728.
20. Sesterhenn IA, Cordaro D, Davis CJ, Furusato B. Frequency of lymphatic invasion by Prostatic carcinoma in prostatectomies. *Mod Pathol*. 2006;19:87 Abstr 393.
21. Sesterhenn IA, Cordaro D, Davis CJ, Furusato B. Frequency of lymphatic invasion in prostatectomies for prostate cancer. *Urology*. 2006;68 Suppl 5A.120. PD-MP-10.19.
22. Sesterhenn IA, Davis CJ, Furusato B. M2A Antigen (Podoplanin) Ditribution in Prepubertal and Adult Testes and Testicular Tumors. *Urology*. 2006;68 Suppl 5A.126,MP-1150
23. Sesterhenn IA, Davis CJ, Furusato B. M2A Antigen (Podoplanin) Distribution in prepubertal and adult testes and testicular tumors. *Lab Invest.* 2006:86:159A. Abstr 737.
24. Sesterhenn IA, Davis CJ, Furusato B, Miki J, Takahashi H, McLeod DG. Podoplanin expression in prostate. *Lab Invest.* 2006;86:160A. Abstr 738.
25. Shaheduzzaman S, Gao CL, Wang Z, Furusato B, Petrovics G, Srikantan V, Ravindranath L, Nau M, Chen Y, McLeod DG, Sesterhenn IA, Vahey M, Srivastava S. Epithelial cell transcriptome of poorly and moderately differentiated prostate cancers. Proceedings of the 97th Annual Meeting of American Association for Cancer Research, Abst 06-AB-7169.
25. Shaheduzzaman S, Vishwanath A, Banex LL, Furusato B, Nau M, Ravindranath L, Chen Y, Cullen J, Sesterhenn IA, Vahey M, McLeod DG, Petrovics G, Srikantan V, Srivastava S. lactyotransferrin: a frequent expression down-regulation in prostate cancer. Proceedings of the 97th Annual Meeting of American Association for Cancer Research, Abst 06-AB-5303.

Syllabus

1. Annual Genitourinary Pathology Course
2. Annual Anatomic Pathology Course Conference

Collaborators

Military

1. Center for Prostate Disease Research, Urology Services of Walter Reed Army Medical Center, Naval Medical Center, San Diego, Malcolm Grow Medical Center, Madigan Army Medical Center, Brook Army Medical Center and UHUHS
2. Characterization of Prostate Cancer Associated Tumor Suppressor Gene Locus on chromosome 6q16.1.
3. Characterization of PCGEM1, a novel prostate-specific gene overexpressed in prostate cancer
4. A novel prostate-specific G-protein-coupled receptor gene, PSGR, is overexpressed in prostate cancer
5. Preclinical evaluation of prostate-specific G-protein coupled receptor, PSGR, for developing prostate vaccine.
6. SAGE-Bioinformatics to Define Prostate Specific and Prostate Cancer Associated Quantitative Gene Expression Profiles
7. Coordinated Gene Expression Patterns Define Endoplasmic Reticulum (ER) Stress Response Pathway as a Novel Component of Androgen Signaling in Prostate Cancer Cells
8. CPDR Prostate Tissue LCM-based RNA/DNA Bank
9. The Prostate Cancer Cell Center in CPDR
10. Tripler Army Medical Center and Queens Hospital Hawaii.
11. Cancer localization in the prostate with F-18 Fluorocholine PET
12. Walter Reed Pathology Department, Lymphatic Invasion in Prostate Cancer

Civilian

1. Division of Epidemiology and Genetics, NCI, International study on familial testicular tumors.
2. Division of Cancer, Epidemiology and Genetics, NCI, Comparison of Chinese and American prostatic carcinomas.
3. American Veterinary Association, Classification of canine bladder tumors.
4. Tripler Army Medical Center and Queens Hospital Hawaii, Cancer localization in the prostate with F-18 fluorocholine PET.

Intramural Collaborator (Hepatic and Gastrointestinal Pathology (Dr. Goodman).

1. Evaluation of liver histology in a double-blind placebo controlled, randomized dose ranging study of recombinant human interleukin-10 (Tenovil) for treatment of hepatic fibrosis in patients with chronic hepatitis C who failed to respond to previous combination therapy (interferon alfa-2b plus ribavirin) (UBIB).
2. Morphometric analysis of distribution of fibrosis (UBGI).
3. Evaluation of liver histology in a phase II, double-blind, randomized, placebo controlled, multicenter study of the safety and anti-fibrotic efficacy of interferon-gamma 1b in patients with severe liver fibrosis or compensated fibrosis due to hepatitis C, (UBTQ)
4. The utility of gene-specific DNA hypermethylation within diagnostic sextant biopsies as an early detection molecular marker of prostate cancer. Cancer Prevention Studies Branch, Center for Cancer Research, NCI and WRAMC

Projects:

1. Studies of various renal tumors in adults (Wilms' tumor, certain epithelial tumors, multilocular cystic nephroma, and a group of renal hamartomas (angiomyolipoma, capsuloma, adenoleiomyofibroma).
2. Review of testicular tumors in infants and children.
3. Studies of carcinoma in situ of the bladder.
4. Reclassification of the first 2000 bladder tumors in the Bladder Tumor Registr.y

PROFESSIONAL ACTIVITIES

Official Trips (funding agencies in parenthesis)

1. February 2006: United States and Canadian Academy of Pathology, Atlanta, Ga, IA

Sesterhenn (Self),
2. May 2006: AUA Annual Meeting, Atlanta, Ga, IA Sesterhenn.
3. September 2006: IAP Meeting, Montreal, Canada, IA Sesterhenn.
4. October 2006: Venezuelan Oncology Society, Margarita Island, Venezuela (Venezuelan Oncology Society).
5. November 2006: SIU Meting, Cape Town, South Africa, IA Sesterhenn.

Editorial Work:

Manuscripts Reviewed:

CJ Davis and IA Sesterhenn reviewed 5 manuscripts for the following professional journals:

1. *Urology*
2. *The Prostate*
3. *Diagnostic Cytopathology*

Michael D. Stamatakos, Lt Col, USAF, MC
Chair
Date of Appointment 2 – July 2005

DEPARTMENT OF GYNECOLOGIC AND BREAST PATHOLOGY

STAFF

Medical

Michael D. Stamatakos, LtCol, USAF, MC, Staff Pathologist, Interim Chair
Tuyethoa N. Vinh, MD, Staff Pathologist, Assistant Chair
Rubina Mattu, MD, Staff Pathologist
(D) Thomas H. Dougherty, Col, USAF, MC, Staff Pathologist
(A) Mono Tata, MD, Staff Pathologist
Adonica Walker, LtCol, USAF, MC, Staff Pathologist (Pediatric Pathology)

Scientific

Gary L. Bratthauer, MS, MT(ASCP)
Yan-Gao Man, MD

Administrative

Angeline Edmonds, Secretary
Consuelo Lewis, Administrative Assistant

IMPACT

With the increasing role of women in the military, the GYN/Breast Department's consultation service has assumed a large role in military preparedness. During 2006, the department continued to provide excellent consultation service achieving a low turn-around despite the large number of slides in many gynecologic and breast pathology cases with most cases averaging between 10-15 slides. The department did not experience a change in manpower numbers during the year. However, during the 3 months period immediately after Dr. Dougherty's departure and before Dr. Tata's obtaining privileges, the department experienced a loss of manpower. The Department performed 8 hours of didactic lecture, published 9 journal articles, and 14 research abstracts. In addition, the department signed out 313 Pap smears from Peru as part of a WHO/PAHO quality assurance review project.

CONSULTATION

Cases	***Completed***
Military	1,949
Army (673)	
Navy (629)	
Air Force (647)	
Federal	320
VA (314)	
USPHS (5)	
AFIP (1)	
Civilian	1,109
Interdepartmental	309
WHO/PAHO project	313

EDUCATION

Trainees

The department provided month-long rotations for 3 pathology residents, 2-week rotations for 6 pathology residents, and a 2-week rotation for 1 breast surgeon.

Presentations

1. January 2006: AFIP staff conference, "Pathology of the ovary," Stamatakos MD.
2. April 2006: 16th Annual Review of Anatomic Pathology, "Pathology of the placenta," Strauss B.
3. April 2006: 16th Annual Review of Anatomic Pathology, "Pathology of the uterine corpus," Strauss B.
4. April 2006: 16th Annual Review of Anatomic Pathology, "Pathology of the uterine cervix," Dougherty TH.
5. April 2006: 16th Annual Review of Anatomic Pathology, "Pathology of the ovary," Stamatakos MD.
6. April 2006: 16th Annual Review of Anatomic Pathology, "Pathology of intraepithelial lesions of the breast," Stamatakos MD.
7. April 2006: 16th Annual Review of Anatomic Pathology, "Pathology of the breast," Barner R.
8. June 2006: Georgetown University Hospital, "Pathology of intraepithelial lesions of the breast," Stamatakos MD.

RESEARCH

Journal Articles

1. Bratthauer GL, Strauss BL, Tavassoli FA. STAT 5a expression in various lesions of the breast. *Virchows Archiv*. 2006;448(2):165-171.
2. Egland KA, Liu XF, Squires S, Nagata S, Man YG, Bera TK, Onda M, Vincent JJ, Strausberg RL, Lee B, Pastan I. High expression of a novel cytokeratin associated protein in many cancers. *Proc Acad Natl Sci USA*. 2006;103:5929-5934.
3. Fadare, O, Moheidean G, Stamatakos, MD, Tavassoli, FA: Mesencymal lesions of the uterine cervix. *Pathology Case Reviews*. 2006;101(3):140-152.
4. Man YG, Zhao CQ, Wang J. Breast tumor cell clusters and their budding derivatives show different mmunohistochemical profiles during stromal invasion: implications for hormonal and drug therapies. *Cancer Therapy*. 2006;4:193-204.
5. Man YG, Nieburgs HE. A subset of cell clusters with malignant features in morphologically normal and hyperplastic breast tissues. *Cancer Detect Prev*. 2006;30(3):239-247.
6. Man YG, Zhao CQ, Wang J, XL Chen. A subset of prostate basal cells lacks corresponding phenotypic markers. *Pathology-Research & Practice*. 2006;202 (9):651-662.
7. Murakata LA, Lewin-Smith MR, Specht CS, Kalasinsky VF, McEvoy PL, Vinh TN, Rabin LN, Mullick FG. Characterization of acrylic polyamide plastic embolization particles in vitro and in human tissue sections by light microscopy, infrared microspectroscopy and scanning electron microscopy with energy dispersive X-ray analysis. *Mod Pathol*. 2006 Jul;19(7):922-930. Epub 2006 Apr 14 .
8. Richter H, Vinh TN, Mizel MS, Temple HT. Malignant fibrous histiocytoma associated with remote internal fixation of an ankle fracture. *Foot Ankle Int*. 2006; May;27(5):375-379.
9. Strauss BL, Bratthauer GL, Tavassoli FA. STAT 5a expression in breast is maintained in secretory carcinoma in contrast to other histologic types. *Hum Pathology*. 2006;37:586-592.

Abstracts

1. Liu XF, Bera T, Ha D, Man YG, Lee BK, Pastan I. CAPC expression stimulates malignant phenotypes in vitro. *The American Society for Cell Biology 46 Annual Meeting*. 2006;137:1688.
2. Man YG, Chen XL, Garcia FU, Gardner WA. Reduced p63 expression and elevated apoptosis in focally disrupted prostate basal cell layers: Implications for tumor invasion. Accepted for platform presentation at the 2006 USCAP Meeting. *Lab Investigation* 2006;86:292A;1358.
3. Man YG, Egland KA, Onda M, Nagata S, Pastan I. Expression of BPSR correlates with breast and prostate tumor progression and invasion. *Proc Am Assoc Cancer Res*. 2006;47:2896.
4. Man YG, Wang J, Cavalli L. Reduced p63 and elevated apoptosis in focally disrupted myoepithelial cell layers: Early signs of breast tumor invasion? *Breast Disease*. 2006;25:13,

5. Man YG, Liu XF, Mason J, Prabhakar S, Wang B, Zeng X, Stamatakos MD, Gardner WA. Prostate tumor cells near and distant from focally disrupted basal cell layers have different gene expression profiles. *The American Society for Cell Biology 46 Annual Meeting*. 2006;143:1843.
6. Nelson A, Man YG. Mast cells in high grade lesions of patients co-infected with human papilloma virus and human immunodeficiency virus. Accepted for poster presentation at the 2006 USCAP Annual Meeting. *Lab Investigation*. 2006;86:257A;1190.
7. Zhao C, Bratthauer GL, Barner R, and Vang R, Immunohistochemical (IHC) analysis of SOX9 in ovarian Sertoli cell tumors and other tumors in the differential diagnosis (DDx). United States and Canadian Academy of Pathologists Annual Meeting, Atlanta, Ga, February, 2006. Abstract in *Modern Pathology* 19(1), and *Laboratory Investigation* 86(1), #947, 2006.
8. Zhao C, Vang R, Bratthauer GL, and Barner R. "Comparative analysis of alternate immunohistochemical (IHC) markers for the distinction of ovarian Sertoli cell tumors from endometrioid tumors and carcinoid tumors: a study of 160 Cases. United States and Canadian Academy of Pathologists Annual Meeting, Atlanta, Ga, February, 2006. Abstract in Modern Pathology 19(1), and Laboratory Investigation 86(1), #947, 2006.

Projects

1. UBXA: Lobular intraepithelial neoplasia (LIN) of the breast: an examination of the relationship to ductal disease and infiltrating carcinomas.
2. UBZY: STAT 5a in in-situ ductal and lobular lesions and in invasive breast carcinomas.
3. UBYI: Peutz-Jehger's syndrome.
4. UBWW: Comparison of novel myoepithelial cell immunohistochemical markers with more established immunomarkers in the human breast.
5. UBIF: New approaches for the early detection of breast cancer.
6. UB5G: Analysis of ovarian Sertoli cell tumors.
7. UBSA: Mesothelioma involving the ovary.

Collaborators

1. Ira Pastan, MD, Chief, Laboratory of Molecular Biology, NCI, NIH, Bethesda, Md.
2. Chuxia Deng, PhD, Chief, Mammalian Genetics Section, GDDB, NIDDK, NIH, Bethesda, Md.
3. Hebert E. Nieburgs, MD, Professor, Department. of Pathology, University of Massachusetts Medical School, Worcester, Mass.
4. Arnold M. Schwartz, MD, PhD, Professor, Department of Pathology, George Washington University Medical Center, Washington DC.
5. Patricia E. Berg, PhD, Associate professor, Department of Biochemistry and Molecular Biology, George Washington University Medical Center, Washington DC.
6. Xiaoli Chen, MD, Associate professor, Department of Pathology, Drexel University Medical School, Philadelphia, Pa.
7. Judith Weisz, MD, Professor, Department of Obstetrics, Gynecology, and Pathology, Pennsylvania State University Medical School, Hershey, Pa.
8. Qing-xiang Sang, PhD, Associate professor, Department of Chemistry and Biochemistry, Florida State University, Tallahassee, Fla.
9. Zhang Xichen, PhD, Professor, Jilin University, Changchun, China.
10. Luciane R. Cavalli, PhD. Assistant professor, Georgetown University Medical Center, Washington DC.
11. Fattenah A. Tavassoli, MD, Department of Pathology, Yale University.
12. Brian L. Strauss, MD, Quest Diagnostics, Las Vegas, Nev.
13. Ross Barner, MD, Department of Pathology, Walter Reed Army Medical Center.
14. Zhao, MDagee Women's Hospital University of Pittsburgh Medical Center.
15. Russel Vang, MD, Assistant professor, Department of Pathology, Johns Hopkins University.

PROFESSIONAL ACTIVITIES:

Courses attended

1. February 2006: United States and Canadian Academy of Pathology Annual Meeting, Atlanta, Ga, MD Stamatakos.
2. April 2006: Maryland Pathology Society Annual Spring Meeting: Selected topics in gynecologic pathology, Ellicott City, Md, R Mattu, MD Stamatakos, TN Vinh.

3. October 2006: Johns Hopkins 9th Annual Current topics in gynecologic pathology, Baltimore, Md, R Mattu, MD Stamatakos, TN Vinh.

Manuscripts reviewed

1. *Cancer Therapy*, Man YG
2. *Cancer Detection and Prevention*, Man YG
3. *Archive of Pathology and Laboratory Medicine*, Stamatakos MD

Elisabeth J. Rushing, COL, MC, USA
Chair
Date of Appointment — 7 March 2005

DEPARTMENT OF NEUROPATHOLOGY AND OPHTHALMIC PATHOLOGY

ORGANIZATION

The department is organized into 2 divisions.

1. Division of Neuropathology – Elisabeth J. Rushing, COL, MC, USA
2. Division of Ophthalmic Pathology –Ahmed Hidayat, MD

STAFF- NEUROPATHOLOGY

Medical:

Glenn D. Sandberg, COL, MC, USA, Staff Neuropathologist
Charles S. Specht, MD, Staff Neuropathologist
(D) Darius Amjadi, MAJ, MC, USA, Staff Neuropathologist
(D) Iren Horkayne-Szakaly, Second Year Resident, ARP
Matthew Katus, MAJ, USAF, MC, Second Year Resident

Administrative:

Erlinda T. Castro, Secretary, ARP
(D) Erma Campbell, Secretary, GS

IMPACT

- The diagnostic expertise of the staff is constantly in demand for a variety of lectures at military and civilian hospitals including Walter Reed Army Medical Center (WRAMC), Madigan Army Medical Center (MAMC), National Naval Medical Center (NNMC), Uniformed Services University of Health Sciences (USUHS), University of Maryland Medical System, Baltimore, Md, Georgetown University Medical Center, Howard University Medical School and Washington Hospital Medical Center.
- A close relationship has been established with the Department of Pathology and the Neurosurgery Service, WRAMC, for the interpretation of intraoperative consultations and tumor board cases.
- This is the only military program fully accredited by the Accreditation Council for Graduate Medical Education in the military services for training of medical officers, including neurosurgeons and neurologists, in the field of neuropathology. Our trainees have consistently received high marks in exams leading to board certification, and many have achieved international recognition for their research endeavors in neuropathology. Military and civilian physicians in training in neurology, neurosurgery and pathology from medical centers nationwide and abroad regularly attend the semi-annual, intensive, 3-month didactic course designed in support of preparation for specialty board certification.
- Members of the staff participated in the ongoing NASA investigation of the space shuttle Columbia disaster.

DIAGNOSTIC CONSULTATION

DIVISION OF NEUROPATHOLOGY

Cases	*Completed*
Military	123
Army (72)	
Navy (45)	
Air Force (06)	
Federal	93
VA (92)	
USPHS (1)	
AFIP	1
Civilian	301
Interdepartmental	82
Total	600

DIVISION OF NEUROMUSCULAR PATHOLOGY

Cases	*Completed*
Military	77
Army (32)	
Navy (33)	
Air Force (12)	
Federal	112
VA (108)	
USPHS (4)	
OFA (0)	
Civilian	258
Interdepartmental	2
Total	449

The Divisions of Neuropathology and Neuromuscular Pathology made no change in the contributor diagnosis in 238 cases, a minor change in diagnosis in 70 cases, and a major change in diagnosis in 1 case. We received 574 cases with no contributor diagnosis.

Cases submitted to Neuropathology and Neuromuscular Pathology include surgical specimens, whole brains obtained at autopsy, skeletal muscle biopsy specimens from cases of medical disorders of skeletal muscle, peripheral nerve biopsy specimens, and skin biopsy specimens from suspected cases of storage disease. All cases accompanied by radiologic studies are reviewed in conference with the Neuroradiology staff of the Department of Radiologic Pathology. Whole brains are serially sectioned and studied according to standardized protocols for specific disorders. Skeletal muscle biopsy specimens are routinely examined using histochemical stains, enzyme histochemical methods, and in selected cases, with immunohistochemistry and electron microscopy. Peripheral nerve and skin biopsy material are evaluated with light and electron microscopy. The department also provides neuropathology review on selected cases from the Office of the Armed Forces Medical Examiner. Consultation is also provided for Veterans Affairs claim cases.

EDUCATION

Clinicopathologic Conferences:

Department staff participates in the following clinicopathologic conferences as part of our ongoing educational mission:

1. Neuropathology and Ophthalmic Pathology, AFIP: daily sign-out conference.
2. Department of Pathology, Walter Reed Army Medical Center: weekly intra-operative diagnosis of neurosurgical specimens.
3. Department of Neuropathology, AFIP: weekly neuropathology/neuroradiology conference.
4. Department of Neuropathology, AFIP: bimonthly review of muscle biopsies with the staff of the Connective Tissue Disease Section, National Institutes of Health.

5. Walter Reed Army Medical Center: monthly neurosurgery tumor board.
6. Department of Neuropathology, AFIP: bi-monthly journal club.

Courses

Members of the staff participated as faculty members in 4 AFIP-sponsored general pathology courses and in 1 non-AFIP course.

1. February 20–24, 2006: 44th Annual Neuropathology Review, 165 attendees.
2. March 20–26, 2006: 16th Annual Anatomic Pathology, 134 attendees.

Trainees

The department is fully approved for residency training in neuropathology by the Residency Review Committee for Pathology of the Accreditation Council for Graduate Medical Education. In 2006 the department had 1.5 full-time residents for a total of 375 training days. The department had 7 military and 19 civilians for a total of 724 training days in 2006.

Faculty Appointments

1. Walter Reed Army Medical Center, Washington, DC, Consultant in Neuropathology, EJ Rushing
2. Walter Reed Army Medical Center, Washington, DC, Consultant in Neuropathology, GD Sandberg
3. Georgetown University, Washington, DC, Adjutant Associate Professor, Department of Pathology, EJ Rushing

Educational Aides

Department Library

- Syllabus of General Neuropathology: This collection consists of non-neoplastic lesions of the nervous system mounted on glass slides.
- Syllabus of Neoplastic Lesions of the Central Nervous System: This collection consists of sections of tumors mounted on glass slides.
- Histology: A Photographic Atlas: This system includes a videodisc that contains over 7,000 color photographs of cells, organs, and tissues, including the nervous system.
- Radiologic Atlas of Brain Tumors: This is a collection of 1,040 cases of brain tumors on a videodisc.
- Yakovlev-Haleem Collection: This collection includes 1,570 specimens of cerebrovascular disease, neurosurgery for behavioral diseases, congenital malformations, and experimental animals. Associated with the collection are a reference library and computer-training technology.
- Lindenberg Collection: 15,000 specimens. Includes clinical and laboratory records, glass slides, and paraffin blocks documenting cases of head trauma from the Office of the Maryland State Medical Examiner. The late Dr. Richard Lindenberg founded the collection.
- Rubinstein Collection: 4,000 specimens, which includes slides, paraffin blocks, photographs, and records documenting brain tumors. The collection was founded by the late Dr. Lucien J. Rubenstein and transferred to the AFIP from the University of Virginia in 1991.

Presentations

1. January 2006: Washington Hospital Center, Department of Neurosurgery, “Surgical neuropathology, selected cases,” EJ Rushing.
2. January 2006: Washington, DC, Georgetown University Medical Center, Department of Pathology “Surgical neuropathology unknowns,” EJ Rushing.
3. January 2006: Washington DC, Walter Reed Army Medical Center. Consultant, Department of Pathology, EJ Rushing.
4. February 2006: Washington, DC, Howard University School of Medicine, lecture to sophomore medical students on “Brain tumor, primary and metastatic.”
5. February 2006: Bethesda, Md, AFIP 43rd Annual Neuropathology Review, “Introduction to neuropathology,” GD Sandberg.
6. February 2006: Bethesda, Md, AFIP 43rd Annual Neuropathology Review, “Embryonal, neuronal and mixed neuronal-glial neoplasms of the central nervous system,” EJ Rushing.
7. February 2006: Washington, DC, Georgetown University Medical Center, Department of Pathology, “Surgical neuropathology unknowns,” EJ Rushing.

8. February 2006: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Astrocytomas," EJ Rushing.
9. February 2005: Washington, DC, Howard University Medical School, "Brain tumors," EJ Rushing
10. March 2006: Washington, DC, Georgetown University Medical School, "Alzheimer and other neurodegenerative diseases" and "Demyelinating diseases."
11. March 2006: Washington, DC, Washington Hospital Center, Department of Neurosurgery, "Selected topics in surgical neuropathology II," EJ Rushing.
12. March 2005: "Brain cutting conference," I Horkayne-Szakaly, EJ Rushing.
13. March 2006: Washington, DC, Walter Reed Army Medical Center, Department of Neurosurgery, "Vascular Disease of the CNS," CS Specht.
14. March 2006: Hershey, PA, Penn State-Hershey Medical Center, Department of Pathology, "Skeletal Muscle Pathology in the KUW Registry," CS Specht.
15. March 2006: Washington, DC, Armed Forces Institute of Pathology, Weekly Professional Staff Conference, "Von Hippel-Lindau Disease: Eye and CNS Findings," CS Specht.
16. March 2006: Bethesda, MD, 16th Annual AFIP Anatomic Pathology Course, Astrocytomas, CS Specht.
17. April 2006: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Pituitary pathology," EJ Rushing.
18. April 2006: Washington, DC, Georgetown University Medical Center, Department of Pathology, " Pathology residents: Neuropathology Quiz I," EJ Rushing.
19. April 2006: Hershey, Pa, Penn State-Hershey Medical Center, Department of Pathology, "Von Hippel-Lindau disease: eye and CNS findings," CS Specht.
20. May 2006: Washington, DC, Washington Hospital Center, Department of Neurosurgery, "Selected topics in surgical neuropathology III," EJ Rushing.
21. May 2006: Tacoma, Wash, Madigan Army Medical Center, Department of Pathology, "Microscopic slide unknowns," EJ Rushing.
22. May 2006: Washington, DC, Georgetown Medical Center, Department of Pathology, "Pathology residents: neuropathology quiz II," EJ Rushing.
23. June 2006: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Unknown slide conference," EJ Rushing.
24. June 2006: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Brain cutting conference," EJ Rushing.
25. June 2006: Washington, DC, Walter Reed Army Medical Center, Department of Pathology, "Embryonal tumors," EJ Rushing.
26. June 2006: Washington, DC, Walter Reed Army Medical Center, Department of Pathology, "Muscle pathology," EJ Rushing.
27. June 2006: Washington, DC, Walter Reed Army Medical Center, Department of Pathology, "Astrocytomas," CS Specht.
28. June 2006: Washington, DC, Walter Reed Army Medical Center, Department of Pathology, "Non-Astrocytic Glial Tumors," Walter Reed Army Medical Center, Department of Pathology, CS Specht.
29. July 2006: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Brain cutting conference," EJ Rushing.
30. August 2006: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Unknown slide conference," EJ Rushing.
31. August 2006: Washington, DC, Walter Reed Army Medical Center, Department of Pathology, "Brain cutting conference," CS Specht.
32. September 2006: Washington, DC, Walter Reed Army Medical Center, "Brain cutting conference," I Horkayne-Szakaly, EJ Rushing.
33. October 2006: Washington, DC, Washington Hospital Center, Department of Neurosurgery, " Selected topics in surgical neuropathology IV," EJ Rushing.
34. November 2006: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Unknown slide conference," EJ Rushing.
35. December 2006: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Pathology residents: Quiz," EJ Rushing.

RESEARCH

Publications:

Members of the department contributed to the publication of 9 refereed journal articles and eight abstracts. A syllabus for the 43rd Annual Neuropathology Review was published. Handouts for lectures in one AFIP-sponsored course were prepared.

Journal Articles:

1. Begnami MD, Rushing EJ, Evangelista R, Santi M, Quezado M. Evaluation of RB gene and cyclin-dependent kinase inhibitors P21 and P27 in pleomorphic xanthoastrocytoma. *Int J Surg Pathol*. 2006;14:113-118.
2. Cooper PB, Auerbach A, Aguilera NS, Adair C, Moores L, Geyer D, Rushing EJ. Rare primary CNS anaplastic large cell lymphoma in an immunocompetent adult: a clinical-pathologic case report and review case of the literature. *Clin Neuropathol*. 2006;25:232-236.
3. Cooper PB, Katus M, Moores L, Geyer D, Smirniotopoulos JG, Sandberg GD, Rushing EJ. Rare Giant Cell Ependymoma in an Octagenerian: A Clinical-Pathological Case Report and Review of the Literature. *J Neurosurg*. 2006;105:915-918.
4. Li J, Yin C, Okamoto H, Jaffe H, Oldfield EH, Zhuang Z, Vortmeyer AO, Rushing EJ. Proteomic analysis of inclusion body myositis. J *Neuropathol Exp Neurol*. 2006;65:826-833.
5. Murakata LA, Lewin-Smith MR, Specht CS, Kalasinsky VF, McEvoy PL, Vinh TN, Rabin LN, Mullick FG. Characterization of acrylic polyamide plastic embolization particles in vitro and in human tissue sections by light microscopy, infrared microspectroscopy and scanning electron microscopy with energy dispersive X-ray analysis. *Mod Pathol*. 2006;19: 922-930.
6. Makuria AT, Henderson FC, Rushing, EJ, Hartmann D-P, Azumi N, Ozdemirli M, Oligodendroglioma with neurocytic differentiation versus atypical extraventricular neurocytoma: a case report of unusual pathologic findings of a spinal cord tumor. *J NeuroOncol*. 2006 Oct 13; [Epub ahead of print].
7. Rushing EJ, Sandberg GD, Judkins AR, Vezina G, Kadom N, Myseros JS, Packer RJ, Santi, M. Germinoma. Unusual radiographic and pathologic presentation in two patients. *J Neurosurg*. 2006;104:143-148.
8. Sandberg, GD, Wong K, Iren Horkayne-Szakaly I, Dickey G, Rorke-Adams LB, Rushing EJ. Trimyelia with divergent cord pathways and three foramina magni: a case report. *Childs Nerv Sys*. 2006 Aug 29; [Epub ahead of print].
9. Takada Y, Fariss RN, Müller M, Bush RA, Rushing EJ, Sieving PA. Retinoschisin expression and localization in rodent and human pineal and consequences of mouse RS1 gene knockout. *Mol Vis*. 2006;12:1108-1116.

Abstracts

1. Blumenthal DT, Spencer A, Wade M, Steltzer K, Rushing EJ. MGMT methylation in newly-diagnosed glioblastoma multiforme (GBM): From the S0001 phase III study of radiation therapy (RT) and O6-benzylguanine, (O6BG) plus BCNU versus RT and BCNU alone for newly diagnosed GBM . *J Clin Oncol*. 2006;24:1512.
2. Dimitriadis E K, Lin DC, Horkayne-Szakaly I, Horkay F. Structure and Mechanical Properties of Engineered Cartilage. *Biophysical Society Annual Meeting*. February 18-22, 2006, Salt Lake City, Utah. Abstracts.
3. Horkay F, Dimitriadis EK, Horkayne-Szakaly I, Lin DC, Basser PJ. Osmotic and Mechanical Properties of Cartilage. 231st ACS National Meeting, March 26-30, 2006. Atlanta, Ga. Biological Chemistry Division, Abstracts.
4. Horkay F, Lin DC, Dimitriadis EK, Horkayne-Szakaly I, Basser PJ. Comprehensive Analysis of the Swelling and Biomechanical Properties of Tissue Engineered Cartilage. 232nd ACS National Meeting, San Francisco, CA, Division of Biochemical Technology, September 10-14, 2006. Abstracts p. 176-177.
5. Lin DC, Dimitriadis EK, Horkayne-Szakaly I, Basser PJ, Horkay F. Mapping the elasticity of biological tissues at the nanoscale. *NIH Research Festival, Bench to Bedsid*e, Bethesda, Md. October 17-20, 2006. 1. Matsuda KM, Li T-Q, Quezado M, Rushing E. Direct Comparison of Histology and High Resolution 7T MRI using an autopsy brain of Alexander's Disease. *2006 NIH Research Festival,* October 18, 2006, Bethesda, Md.
6. Lin DC, Dimitriadis EK, Horkayne-Szakaly I, Horkay F. Elastic and Osmotic Properties of Articular Cartilage. *American Physical Society Meeting*, March 13-17, 2006. Baltimore, Md. Abstracts.
7. Tihan T, Rushing EJ, Ozuysal S, Zhou T, Holmes E, and Burger PC. Prognostic Value of

Histologic Grading in Ependymomas: A Children's Oncology Group (COG) Study, and a Critical Review of the Literature

Other Publications

1. Syllabus for 43rd Annual Neuropathology review
2. Handouts for lectures in 1 AFIP-sponsored course

Projects

The divisions of Neuropathology and Neuromuscular Pathology have 11 officially approved research protocols:

1. Protein expression in brain tumors, 05AH, EJ Rushing.
2. Analysis of p13K/PTEN signaling pathway in ganglion cell lesions and subependymal giant cell astrocytoma, UB5F, EJ Rushing.
3. Identifying and investigating chordoma families: a collaboration between NCI and AFIP to investigate the molecular pathogenesis of familial chordoma, UB5I, EJ Rushing.
4. Hypoxic signaling in ischemic and metabolic brain lesions, UB5S, Elisabeth Rushing.
5. Incidence of neuritic plaques in brain radiation injury, UBRK, EJ Rushing.
6. Meningiomas: Study of unusual variants, UBSV, EJ Rushing.
7. Pleomorphic xanthoastrocytoma: Immunohistochemical and clinicopathological studies for evaluation of aggressive variants, UBVF, EJ Rushing.
8. A review of neuromuscular pathology and neuropathology in Desert Storm and Gulf War veterans, UBWC, C Specht.
9. GABAergic system gene expression in pediatric brain tumors, 06BG, GD Sandberg.
10. Expression of novel pineal cell protein markers in normal human pineal gland and pineal parenchymal tumors, 06BS, EJ Rushing.
11. A novel approach to transporting muscle biopsies, 06CJ, EJ Rushing.

Collaborators

Military/Federal

1. COL William Campbell, MD, Department of Neurology, Uniformed University of the Health Sciences, Bethesda, Md: Rhabdomyolysis Study Group.
2. MAJ Patrick Cooper, MD, Departments of Neurosurgery, National Capitol Consortium, Walter Reed Army Medical Center.
3. Martha Quezado, MD, National Cancer Institute, National Institutes of Health, Bethesda, Md: Chromogenic in situ hybridization of brain tumors.
4. MAJ Stephen S. Roberts, MD, Department of Pediatric Oncology, Uniformed Services University of the Health Sciences: GABAergic system gene expression in pediatric brain tumors.
5. Paul Sieving, MD, National Eye Institute, National Institutes of Health, Bethesda, Md: Expression of novel pineal cell protein markers in normal human pineal gland and pineal parenchymal tumors.
6. James Smirniotopoulos, MD, Department of Radiology, Uniformed University of the Health Sciences, Bethesda, Md: Neuroradiology of pleomorphic xanthoastrocytoma.
7. Ajay Verma, MD, Department of Neurology, Uniformed University of the Health Sciences, Bethesda, Md: Epo-expression in brain tumors.
8. Alexander Vortmeyer, MD, National Institutes of Health, Bethesda, Md: Proteomic analysis of inclusion body myositis.

Civilian:

1. Deborah Blumenthal, MD, University of Utah, Department of Neurology: Hypermethylation status in Glioblastoma after 06-Benzylguanine treatment.
2. David N. Louis, MD, Matthew P. Frosch, MD, Harvard University School of Medicine, Boston, Mass: AFIP Central Nervous System Atlas on Non-tumor Pathology.
3. Mariarita Santi, MD, Children's Hospital National Medical Center, Washington DC: Pediatric meningiomas, CISH and ependymoma and GBM.
4. Juan C. Troncoso, MD, Johns Hopkins University School of Medicine, Baltimore, Md: Histological review of brains in Baltimore longitudinal study of aging (BLSA).

Interdepartmental:

Aaron Auerbach, MD, Department of Hematologic Pathology.

Nadine Aguilera, MD, Department of Hematologic Pathology.

PROFESSIONAL ACTIVITIES:

Committees Intramural:

E. Rushing:

1. Registrar, Registry of Neuropathology, American Registry of Pathology
2. Member, Oversight Committee for Continuing Medical Education
3. Chair, Library Committee
4. Member, Graduate Medical Education Committee

GD Sandberg:

Member, Information Management Support Council.

CS Specht:

1. Member, Research Committee.
2. Member, Bio-Safety Committee

MC Katus:

Member, Library Committee

Manuscripts Reviewed:

Members of the department reviewed 8 manuscripts for the following professional journals:

1. *Journal of Neuropathology and Experimental Neurology* (2), EJ Rushing.
2. *Archives of Pathology and Laboratory Medicine*, EJ Rushing.
3. *Neuropathology and Applied Neurobiology* (2), EJ Rushing.
4. *Acta Neuropathologica* (2), EJ Rushing.
5. *Cancer*, EJ Rushing.

Offices/Committee Memberships in National or International Societies:

1. Brain Pathology Reviewer, Southwest Oncology Group (SWOG), San Antonio, Tex, EJ Rushing.
2. Consensus Committee on Juvenile Dermatomyositis, London, England, EJ Rushing
3. Professional Affairs Committee, American Association of Neuropathologists, EJ Rushing.

Official Trips:

1. January 2006: Professional Affairs Committee Meeting, American Association of Neuropathologists, Chicago, Ill, EJ Rushing.
2. April–June 2006: Pediatric Neuropathology, Philadelphia, Pa, MC Katus (AFIP, ARP).
3. September 2006: XVIth International Congress of Neuropathology, San Francisco, Calif, EJ Rushing, MC Katus.
4. October 2006: World Muscle Society Meeting, Bruges, Belgium, EJ Rushing.

Continuing Education:

Members of the Department attended the following courses for training during 2006:

1. 43rd Annual Neuropathology Review, AFIP course, Bethesda, Md (ARP)
2. Neuroradiology Course, AFIP, Bethesda, Md
3. Maryland Society of Pathologists Lecture Series, Baltimore, Md
4. AFIP Weekly Professional Staff Conferences, Washington, DC

Goals:

Our goals include (1) diagnosing all consultation cases in accurate and timely manner by reducing the turnaround time; (2) maintaining the residency program by recruiting at least one new resident each year; (3) incorporating newly published scientific information into the short and long neuropathology courses; (4) identifying, investigating, and publishing significant research projects in collaboration with intramural and extramural sources and presenting the results at national and international meetings; and (5) serving as a neuromuscular reference laboratory for DoD and other government and civilian institutions.

DIVISION OF OPHTHALMIC PATHOLOGY

STAFF

Medical

Ahmed A. Hidayat, MD, Chief
Emiko Furusato, MD, Assistant
Keith J. Wroblewski, LTC, Fellow

Administrative

Erlinda T. Castro, Secretary

IMPACT

- The division provides consultation services to pathologists of the Armed Forces, VA, US Public Health Service, and to civilians. Complete gross and microscopic examinations are made on enucleated eyeballs for contributors from hospitals where facilities and trained personnel are not available for this specialized work. Diagnoses are provided to medical centers on microslides of interesting, unusual, and/or difficult cases.
- Division staff conduct research based on the wealth of accumulated case material in the Registry of Ophthalmic Pathology. Research is often conducted with outside scientists or in collaboration with personnel in other departments and divisions, involving special histochemical, immunological, and electron microscopic techniques and specialized equipment.
- The division administers graduate training in ophthalmic pathology to residents, medical students, and fellows, and organizes and conducts courses in ophthalmic pathology.

CONSULTATION

The division provides "first echelon" consultation services to military and VA hospitals. Very few governmental hospitals have either technical or professional personnel trained to prepare whole eyes for histopathologic study or to evaluate alterations in sectioned eyes. The division, therefore, served as the central laboratory for routine diagnostic work and consultation services in ophthalmic pathology. Similarly, there are many civilian communities throughout the world where no facilities are available for this work. Through the auspices of the Registry of Ophthalmic Pathology, sponsored by the American Academy of Ophthalmology, the division renders consultation services to civilian contributors. Much of the routine work has been diverted to ophthalmic pathology laboratories at universities and other institutions. These laboratories now provide high-quality service and forward only the particularly difficult or unusually interesting cases to the AFIP, so that our division is receiving fewer but more difficult cases.

In 5 cases, we had major disagreements with the contributor; in 120 cases, there were minor diagnostic changes; and in 353 cases, no contributor diagnosis was given. We agreed with the contributor in 124 of the cases.

The scientific laboratory handled 493 cases by processing wet tissue, preparing histologic slides, and special stains. In most of the 353 cases received without a diagnosis the scientific laboratory processed wet tissue. Whole eye specimens received as wet tissue were carefully grossed to identify the pathology.

Cases	*Completed*
Military	93
Federal(VA/PHS/OFA)	154
Civilian	355
Interdepartmental	19
Total	621

EDUCATION

Courses

In 2006, the division presented its annual course, "Ophthalmic Pathology for Ophthalmologists," at the Double Tree hotel. The division staff presented a daily clinicopathologic confer-

ence to residents in ophthalmology at NNMC, WRAMC, and local civilian programs.

Trainees

Division facilities and personnel are in great demand for training in various phases of ophthalmic pathology and research. During 2006, approximately 14 physicians began or completed training on a full-time basis for 1 to 18 months. We had one full-time fellow in training for a year, and 10 residents from local hospitals were assigned for 1 to 6 months. In addition, 3 medical students spent their elective months in the division.

Presentations

1. April 2006: Combined Ophthalmic Pathology Meeting of the Association of Ophthalmic Alumni of the Armed Forces Institute of Pathology and the Theobold and Hogan Ophthalmic Pathology Societies, Philadelphia, Pa, "Cranial fascitis of the orbit," AA Hidayat.
2. April 2006: Combined Ophthalmic Pathology Meeting of the Association of Ophthalmic Alumni of the Armed Forces Institute of Pathology and the Theobold and Hogan Ophthalmic Pathology Societies, "Adenoma of the retinal pigment epithelium," E Furusato.
3. May 2006: Association for Research in Vision and Ophthalmology(ARVO), Ft Lauderdale, Fla, "BCL-2 Expression in melanocytic neoplasms of the conjunctiva," E Furusato, AA Hidayat.
4. June 2006: Combined Meeting and Histopathology Slide Seminar of the Verhoeff-Zimmerman and European Ophthalmic Pathology Socities, "Primary Malignant Melanoma of the Orbit," AA Hidayat.
5. September 2006: Meeting and Ophthalmic Histopathology Slide Seminar of the Eastern Ophthalmic Pathology Society, Nova Scotia, Canada, "Epibulbar Rosai-Dorfman disease," AA Hidayat.
6. December 2006: Washington, DC, AFIP Weekly Professional Staff Conference, "The effect of retinal Stimulator," AA Hidayat.
7. December 2006: Washington, DC, AFIP Weekly Professional Staff Conference, "BCL-2 expression in melanocytic neoplasms of the conjunctiva," E Furusato.

RESEARCH

Publications

1. Hidayat A, Cockerham G. Epithelial metaplasia of the corneal endothelium in Fuchs' endothelial dystrophy. *Cornea*. 2006;25:956-959.
2. Tefts K, Guerguieva M, Hidayat AA, et al. Molecular and clinical spectrum of type I plasminogen deficiency: a series of 50 patients. *Blood*. 2006;108(9):3021-3026.
3. Wroblewski KJ, Mader TH, Tores MF, Parmley VC, Rotkis WM. Long-term graft survival in patients with Down syndrome after penetrating keratoplasty. *Cornea*. 2006;25(9):1026-1028.
4. Wroblewski KJ, Pasternak JF, Bower KS, Schallhorn SC, et al. Infectious keratitis after photorefractive keratectomy in the United States army and navy. *Ophthalmology*. 2006; 113(4):520-525.

Projects

1. Inflammatory infiltrates in melanocytic lesions of the conjunctiva, E Furusato, AA Hidayat
2. Ocular leprosy, KJ Wroblewski, A Hidayat.
3. Tuberculosis of the eye, KJ Wroblewski, A Hidayat.
4. Immunohistochemical profile of keratocytes and endothelium in posterior polymorphous corneal dystrophy, in collaboration with Stanford University and Veterans Administration, A Hidayat.

PROFESSIONAL ACTIVITIES

Manuscripts Reviewed

21 manuscripts reviewed for scientific journals in 2006, AA Hidayat.

Editorial Boards

Saudi Ophthalmology Journal, AA Hidayat.

ADVANCED PATHOLOGY

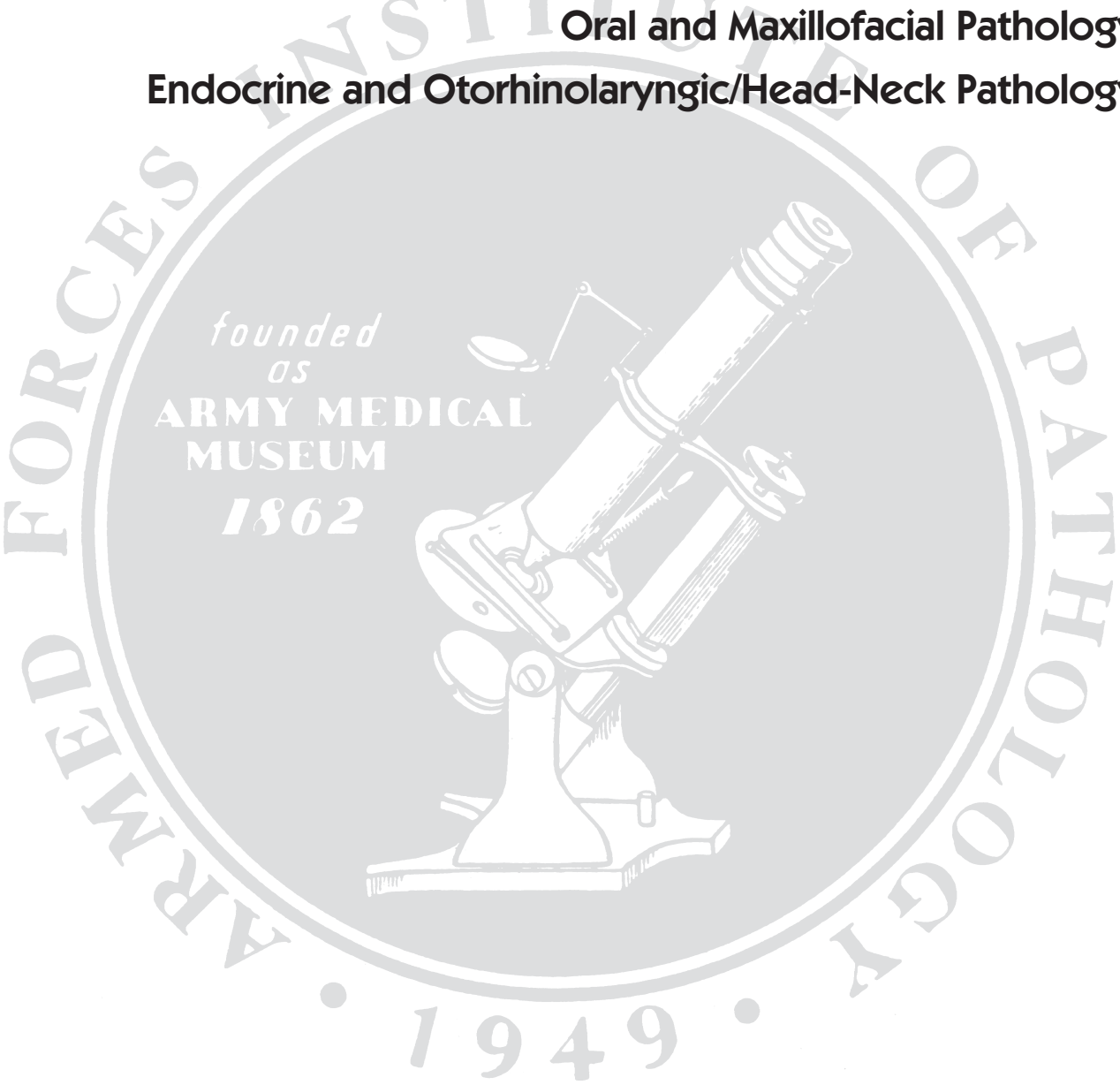
GROUP 2

Dermatopathology

Soft Tissue Pathology

Oral and Maxillofacial Pathology

Endocrine and Otorhinolaryngic/Head-Neck Pathology



George P. Lupton, MD
Chair
Date of Appointment — 1 July 1988

DEPARTMENT OF DERMATOPATHOLOGY

STAFF

Medical

George P. Lupton, MD, Chair
Maria-Magdalena Tomaszewski, MD, Assistant Chair
Luke S. Chung, MD
Walter L. Rush, MD
James R. Hallman, MD
(D) Mike Royer, MAJ, MC, USA (until June 30, 2006)

Administrative:

Clara Desane
Vashti A. Jefferson
(A) Reneta Walker, HM1/USN/AD (since September 22, 2006)

IMPACT

The Department of Dermatopathology continues to provide expert consultation on the highest volume of cases of any department in the Institute. The Department has full accreditation for its Dermatopathology Fellowship Training Program by the Accreditation Council for Graduate Medical Education. This program, the only one of its kind in the Department of Defense, provides training for military physicians leading to Board Certification in Dermatopathology for the military services. In addition, the Department provides extensive training to numerous rotating residents, both military and civilian, throughout the year.

Our goals are:

- to provide expert and timely consultation on dermatopathology cases sent to us for review.
- to provide education in dermatopathology through lectures at local, regional and national meetings and by conducting a departmental course.
- to conduct research on pertinent topics in dermatopathology and publish results in respected national and international journals of dermatopathology, pathology and dermatology.
- to conduct a fully accredited Dermatopathology Fellowship Training Program to provide the military services with board certified dermatopathologists, thereby enhancing patient care at the primary care level.

CONSULTATION

The Department of Dermatopathology provides consultation services in the field of dermatopathology for military, federal and civilian institutions. Many accessioned federal and civilian consultations are difficult cases, such as melanocytic lesions, that could present high-risk medicolegal problems. The total number of reviewed cases was 9,060 including interdepartmental consultations. Military and federal institutions submitted 7,231 cases, which constituted 88% of cases submitted in 2006. We changed the patient's diagnosis from a benign lesion to cancer or from cancer to a benign lesion, in 272 cases, about 3% of cases, greatly changing the treatment outcome, leading to a potential saving of millions of dollars in

medical malpractice suits. We received 3,386 cases, over 40% of cases, without a contributor diagnosis.

Cases	*Completed*
Military	3,923
Army (1,875)	
Navy (836)	
Air Force (1,212)	
Federal	3,337
VA (3,336)	
PHS (1)	
In house	1
Civilian	1,101
Interdepartmental	698
Total	9,060

EDUCATION

Presentations and Seminars:

Members of our department made 3 presentations at the 16th Annual Anatomic Pathology Review Course (AFIP), Rockville, Md, representing a total of 402 man-hours.

Department staff presented teaching and diagnostic slide conferences 4 times weekly for staff pathologists, dermatopathology fellows, residents, and visiting physicians. We also participated in teaching activities at the AFIP, such as weekly professional staff conferences and the Quarterly AFIP/VA and Military Histopathology Quality Assessment Program.

The staff of the Department of Dermatopathology attended 3 different training courses in 2006, provided at the following venues:

- AFIP 16th Anatomic Pathology Review Course, Rockville, Md.
- 43rd Annual Meeting of American Society of Dermatopathology, Chicago, Ill.
- Combined Skin Pathology Course, Pittsburg, Pa.

Trainees

- In 2006, the department provided training for a total of 50 trainees: 26 federal, 22 non-federal and 2 foreign national physicians, fellows, and residents in dermatology, pathology and dermatopathology. Trainees spent an average of 26.4 days in our department, for a total of 1,317 training-days. They came from teaching facilities including Walter Reed Army Medical Center, National Naval Medical Center, Washington Hospital Center, Howard University Medical Center, Georgetown University Medical Center, George Washington University Medical Center, National Institutes of Health and other military teaching hospitals, and civilian institutions across the country.
- Two military dermatopathology fellows, 1 Army pathologist and 1 Air Force dermatologist, 27 dermatology residents (16 federal and 11 non-federal), 18 pathology residents (7 federal, 11 non-federal) and 2 foreign visiting pathologists and 1 federal intern participated in our program.
- During the academic year 2005-2006, 2 dermatologists, 1 Air Force and 1 Army, were trained as dermatopathology fellows. Two military pathologists, 1 Air Force and 1 Army, began their fellowship program in July 2006.

Faculty Appointments

1. Uniformed Services University of the Health Sciences, Bethesda, Md, GP Lupton.
2. George Washington University School of Medicine, Washington, DC, GP Lupton.
3. John Hopkins Medical School, Baltimore, Md, WL Rush.

Presentations

1. March 2006: Washington, DC, WRAMC, Dermatology Clinic, “Primary cutaneous lymphomas,” M-M Tomaszewski.
2. March 2006: Rockville, Md, AFIP 16thth Annual Anatomic Pathology Course, “Melanocytic lesions of the skin,” GP Lupton.
3. March 2006: Rockville, Md, AFIP 16thth Annual Anatomic Pathology Course, “Malignant eccrine neoplasms,” GP Lupton.

4. March 2006: Rockville, Md, AFIP 16th Annual Anatomic Pathology Course, "Primary cutaneous lymphomas," M-M Tomaszewski.

RESEARCH

Publications

Tomaszewski M-M, Marquart L, Turiansky GW, Lupton GP. Primary malignant mesothelioma resenting as an umbilical tumor. *JAAD*. 2006;55:S101-102.

Project

Wilm's tumor gene 1(WT-1) in melanocytic lesions, Chung LS, Man Y-G, Lupton GP.

PROFESSIONAL ACTIVITIES

Editorial Board

American Journal of Dermatopathology, GP Lupton.

Markku Miettinen, MD, PhD
Chair
Date of Appointment — 1 July 1996

DEPARTMENT OF SOFT TISSUE AND ORTHOPEDIC PATHOLOGY

STAFF

Medical

John J. Fetsch, MD, Assistant Chair of Soft Tissue Pathology
Julie C. Fanburg-Smith, MD, Assistant Chair of Orthopedic Pathology
Val Finnell, Col, USAF, MC
(A) Chandra Prabha, Col, MC, USA
Sumitra L. Parekh, COL, MC, USA
Daniel Strum, COL, MC, USA

Scientific

Jerzy P. Lasota, MD, PhD, Research Pathologist
Virginia Achstetter, HT (ASCP), Senior Laboratory Technologist

Fellows

(D) Prakash Jha, MD
(D) Christopher Moosavi, MD

Administrative

David Dinges, Administrator
Charmaine Howard, Secretary

IMPACT

In 2006, we continued to analyze the AFIP database of over 3,000 gastrointestinal stromal and smooth muscle tumors, the world's largest, and generated systematic data on the behavior of tumors with different biologic parameters, such as histology, antigen expression, and specific types of KIT and PDGFRA mutations. More aggressive clinical behavior was demonstrated for small intestinal vs. gastric GISTs based on our follow-up data. Analysis of KIT and PDGFRA mutations was continued, with several technical improvements and new mutation type findings. These analyses also benefited some military patients whose tumors were examined in our laboratory by contributor request. Radiologic-pathologic correlation of fibroblastic and lipomatous tumors were reviewed in collaboration with the Department of Radiologic Pathology.

CONSULTATION

Consultations included cytology, needle biopsies, excisional biopsies, resection and autopsy specimens of a wide variety of soft tissue, bone, and cardiovascular lesions from a broad range of anatomic sites. We examined tumors with a wide variety of histogenesis, including examples of inflammatory, degenerative, post-traumatic, and iatrogenic conditions. We also saw specimens from a wide variety of locations as interdepartmental consultations. The overall volume of consultations increased from the previous year as a result of combining the Department of Soft Tissue and the Department of Orthopedic Pathology. Short-term training was given to 23 individuals, 8 of whom were members of the Armed Forces.

Cases	*Completed*
Military	806
Army (367)	
Navy (270)	
Air Force (169)	
Federal	645
VA (643)	
Other federal (2)	
Civilian	1,535
Interdepartmental	1,282
Total	4,268

Deployments

At WRAMC, COL Parekh, COL Prabha and Dr. Fanburg-Smith participated in diagnostic anatomic pathology activities, and Drs. Fanburg-Smith and Fetsch delivered lectures on specific types of soft tissue tumors for the residency program of Walter Reed Army Medical Center and National Naval Medical Center. Col Finell acted as Military Consultant for Medical Ethics to the Air Force Surgeon General. as member, of Air Force Surgeon General Human Research Protection committee, and as AFIP controlled substances inventory inspector.

EDUCATION

Courses

Department staff participated as faculty in 2 AFIP courses and 1 non-AFIP course.

Trainees

The department hosted 8 military trainees for a total of 136 training days, and 15 civilian trainees for a total of 512 training days. Training consisted of review of departmental study sets, attendance at special training sessions and clinical conferences, and participation in research projects. Department staff participated in HPQA for DoD and VA facilities with submissions to the monthly and quarterly case programs.

Faculty Appointments

1. Adjunct Professor of Pathology, Anatomy and Cell Biology, Jefferson Medical College of Thomas Jefferson University, Philadelphia, Pa, M Miettinen.
2. Adjunct Professor of Pathology, University of Helsinki, Finland, M Miettinen.
3. Instructor in Pathology, Department of Pathology, USUHS, F. Edward Hebert School of Medicine, Bethesda, Md, JC Fanburg-Smith.
4. Adjunct Associate Professor, Georgetown University Medical Center, Department of Pathology, Washington, DC, JC Fanburg-Smith.
5. Clinical Tutor of Pathology, Georgetown University Medical Center, Department of Pathology, Washington, DC, S Parekh.
6. Faculty Facilitator at Uniformed Services University School of Medicine for medical ethics course, Bethesda, Md, V Finnell.

Presentations

Abstracts (Presented at the US/CAP Annual Meeting, Atlanta, Ga, February 2006)

1. Burke AP, Fanburg-Smith JF, Fetsch JF, Miettinen M. Pulmonary artery sarcoma. A follow-up study of 22 cases. *Mod Pathol*. 2006;19,47A. Abstract #204.
2. Ehrig T, Billings SD, Fanburg-Smith JC. Cutaneous privitive neuroectofermal tumor/Ewing sarcoma: same tumors or a new entity? *Mod Pathol*. 2006;19: Abstract #356.
3. Hartel PH, Fanburg-Smith JC, Frazier AA, Galvin JR, Lichy JH, Shilo K, Franks TJ. Primary pulmonary and mediastinal synovial sarcoma. Single institution study of 43 cases. *Mod Pathol*. 2006;19, Abstract #1439.
4. Laskin WB, Miettinen M, Fetsch JF. Tumoral calcinosis-like lesions of the distal extremities. *Mod Pathol*. 2006;19:14A (abstract #49).
5. Lasota J, Stachura J, Miettinen M. GISTs with PDGFRA exon 14 mutations epresent subset of clinically favorable gastric tumors with epithelioid morphology. *Mod Pathol*. 2006;19.
6. Miettinen M, Makhlouf HR, Sobin LH, Lasota J. Gastrointestinal stromal tumors of jejunum and ileum. *Mod Pathol*. 2006;19.
7. Moosavi CA, Al-Nahar LA, Murphey MD, Fanburg-Smith JC. Fibro-osseous pseudotumor of

the digit: 44 new cases. *Mod Pathol*. 2006;19: (Abstract #57).

8. February 2006: AFIP Staff Conference, "Histiocytic reactions of bone and synovia," M Miettinen.
9. February 2006: Atlanta, Ga, US Canadian Academy of Pathology, "Fibrohistiocytic tumors of intermediate malignancy," JC Fanburg-Smith.
10. February 2006: Atlanta, Ga, US Canadian Academy of Pathology, "Gastrointestinal stromal tumors (GISTs) of the jejunum and ileum: a clinicopathological, immunohisto-chemical and molecular genetic study of 906 cases prior to imatinib with long-term follow-up," M Miettinen.
11. April 2006: Rockville, Md, AFIP Annual Course on Anatomic Pathology, "Orthopedic pathology," JC Fanburg-Smith.
12. April 2006: Rockville, Md, AFIP Annual Course on Anatomic Pathology, "Classification of soft tissue tumors," JC Fanburg-Smith.
13. April 2006: Rockville, Md, AFIP Annual Course on Anatomic Pathology, "Vascular soft tissue tumors," JC Fanburg-Smith.
14. April 2006: Rockville, Md, AFIP Annual Course on Anatomic Pathology, "Nerve sheath tumors," JC Fanburg-Smith.
15. April 2006: Rockville, Md, AFIP Annual Course on Anatomic Pathology, "Muscle cell tumors," Val Finnell.
16. April 2006: Rockville, Md, AFIP Annual Course on Anatomic Pathology, "Fibroblastic tumors," M Miettinen.
17. April 2006: Rockville, Md, AFIP Annual Course on Anatomic Pathology, "Tumor immuno-histochemistry," M Miettinen.
18. April 2006: Rockville, Md, AFIP Annual Course on Anatomic Pathology, "Gastrointestinal stromal tumors," M Miettinen.
19. May 2006: Washington, DC, Walter Reed Army Medical Center Pathology Department, "Orthopaedic Pathology," JC Fanburg-Smith
20. May 2006: Washington, DC, Walter Reed Army Medical Center Pathology Department, "Classification of Soft Tissue Tumors," JC Fanburg-Smith
21. May 2006: Washington DC, Walter Reed Army Medical Center Pathology Department, "Nerve Sheath Tumors," JC Fanburg-Smith.
22. May 2006: Bethesda, Md, Bethesda Naval Hospital, Pathology Department, "Orthopaedic Pathology," JC Fanburg-Smith.
23. May 2006: Bethesda, Md, Bethesda Naval Hospital, Pathology Department, "Nerve Sheath Tumors," JC Fanburg-Smith.
24. May 2006: Bethesda, Md, Bethesda Naval Hospital, Pathology Department, "Classification of Soft Tissue Tumors," JC Fanburg-Smith.
25. May 2006: Warsaw, Poland, Marie Sklodowska-Curie Institute, "Primary and secondary KIT and PDGFRA mutations in gastrointestinal stromal tumors," J Lasota.
26. June 2006: AFIP Staff conference, "Nerve sheath myxoma and its differential diagnosis," J Fetsch.
27. June 2006: Fairfax, Va, Fairfax Hospital, "Pseudosarcomatous lesions," JC Fanburg-Smith.
28. September 2006: AFIP Grand Rounds Video Teleconference, "Nerve sheath myxoma, neurothekeoma, and the differential diagnosis," J Fetsch.
29. October 2006: Las Vegas, Nev, American Society of Clinical Pathology, "Gastrointestinal stromal tumors: Pathology and pathogenesis," M Miettinen.
30. October 2006: Bethesda, Md, NIH Clinical Center, "Lipomatous tumors: a slide seminar," M Miettinen.
31. October 2006: Silver Spring, Md, AFIP Course on Oral and maxillofacial pathology, "Oral and Head and Neck Soft Tissue Tumors," JC Fanburg-Smith.
32. November 2006: Helsinki Finland, University of Helsinki, "Pathology of fibroblastic tumors: review of selected new entities," M Miettinen.
33. November 2006: Helsinki Finland, University of Helsinki, "Fibroblastic tumors: review a slide seminar," M Miettinen.
34. December 2006: Madrid, Spain, Course of Soft Tissue and Molecular Pathology, "Gastrointestinal stromal tumors and other mesenchymal tumors of the gastrointestinal tract," M Miettinen.
35. December 2006: Madrid, Spain, Course of Soft Tissue and Molecular Pathology, "Sclerosing perineurioma : example of a rare soft tissue tumor with a specific pathogenesis," M Miettinen.

RESEARCH

Journal Articles

1. Agaimy A, Wunsch PH, Sobin LH, Lasota J, Miettinen M. Occurrence of other malignancies in patients with gastrointestinal stromal tumors. *Semin Diagn Pathol*. 2006;23:120-129.
2. Dow N, Giblen G, Sobin LH, Miettinen M. Gastrointestinal stromal tumors: differential diagnosis. *Semin Diagn Pathol*. 2006;23:111-119.
3. Fanburg-Smith JC, Majidi M, Miettinen M. Keratin expression in schwannoma; a study of 115 retroperitoneal and 22 peripheral schwannomas. *Mod Pathol*. 2006;19:115-121.
4. Laskin WB, Fetsch JF, Michal M, Miettinen M. Sclerotic (fibroma-like) lipoma: a distinctive lipoma variant with a predilection for the distal extremities. *Am J Dermatopathol*. 2006;28:308-316.
5. Lasota J, Stachura J, Miettinen M. GISTs with PDGFRA exon 14 mutations represent subset of clinically favorable gastric tumors with epithelioid morphology. *Lab Invest*. 2006;86:94-100.
6. Lasota J, Miettinen M. KIT and PDGFRA mutations in gastrointestinal stromal tumors (GISTs). *Semin Diagn Pathol*. 2006;23:91-102.
7. Lasota J, Miettinen M. A new familial GIST identified. *Am J Surg Pathol*. 2006;30:1342.
8. Michal M, Fanburg-Smith JC, Lasota J, Fetsch JF, Lichy J, Miettinen M. Minute synovial sarcomas of the hands and feet: a clinicopathologic study of 21 tumors less than 1 cm. *Am J Surg Pathol*. 2006;30:721-726.
9. Miettinen M, Fetsch JF, Sobin LH, Lasota J. Gastrointestinal stromal tumors in patients with neurofibromatosis 1: a clinicopathologic and molecular genetic study of 45 cases. *Am J Surg Pathol*. 2006;30:90-96.
10. Miettinen M, Fetsch JF. Evaluation of biological potential of smooth muscle tumours. *Histopathology*. 2006;48:97-105.
11. Miettinen M. From morphological to molecular diagnosis of soft tissue tumors. *Adv Exp Med Biol*. 2006;587:99-113.
12. Miettinen M, Lasota J. Gastrointestinal stromal tumors: pathology and prognosis at different sites. *Semin Diagn Patho*l. 2006;23:70-83.
13. Miettinen M, Makhlouf H, Sobin LH, Lasota J. Gastrointestinal stromal tumors of the jejunum and ileum: a clinicopathologic, immunohistochemical, and molecular genetic study of 906 cases before imatinib with long-term follow-up. *Am J Surg Pathol*. 2006;30:477-489.
14. Miettinen M, Fetsch JF. Reticulohistiocytoma (solitary epithelioid histiocytoma): a clinicopathologic and immunohistochemical study of 44 cases. *Am J Surg Pathol*. 2006;30:521-528.
15. Miettinen M, Lasota J. Gastrointestinal stromal tumors: review on morphology, molecular pathology, prognosis, and differential diagnosis. *Arch Pathol Lab Med*. 2006;130:1466-1478.
16. Murphey MD, Arcara LK, Fanburg-Smith J. From the archives of the AFIP: imaging of musculoskeletal liposarcoma with radiologic-pathologic correlation. *RadioGraphics*. 2005;25:1371-1395.
17. Murphey MD, Gibson MS, Jennings BT, Crespo-Rodriguez AM, Fanburg-Smith J, Gajewski DA. From the archives of the AFIP: Imaging of synovial sarcoma with radiologic-pathologic correlation. *RadioGraphics*. 2006;26:1543-1565.
18. Paul SR, Hurford MT, Miettinen MM, Aronoff SC, Delvecchio M, Grewal H, Tuluc M. Polymorphous hemangioendothelioma in a child with acquired immunodeficiency syndrome (AIDS). *Pediatr Blood Cancer*. 2006 Epub Sep 21.
19. Shilo K, Miettinen M, Travis WD, Timens W, Nogueira R, Franks TJ. Pulmonary microcystic fibromyxoma: Report of 3 cases. *Am J Surg Pathol*. 2006;30:1432-1435.
20. Turaga KK, Silva-Lopez E, Sanger WG, Nelson M, Hunter WJ, Miettinen M, Gatalica Z. A (9;11)(q34;q13) translocation in a hibernoma. *Cancer Genet Cytogenet*. 2006;170:163-166.

Abstracts (Presented at the US/CAP Annual Meeting, Atlanta, Ga, February 2006)

1. Ahrens W, Dow N, Lasota J, Miettinen M, Jain D. True smooth muscle neoplasms of the stomach: A clinicopathologic study. *Mod Pathol*. 2006;19:101A (abstract #454).
2. Burke A, Fanburg-Smith JC, Fetsch JF, Miettinen M. Pulmonary artery sarcoma: a follow-up study of 22 cases. *Mod Pathol*. 2006;19:47A (abstract #204).
3. Ehrig T, Billings SD, Fanburg-Smith JC. Cutaneous primitive neuroectodermal tumor/

Ewing sarcoma (PE): Same tumor as deep PE or new entity? 15 cases. *Mod Pathol.* 2006;19:80A (abstract #356).
4. Hartel PH, Fanburg-Smith JC, Lichy J, Shilo K, Franks TJ. Primary pulmonary and mediastinal synovial sarcoma (PPMSS): Single institution study of 43 cases. *Mod Pathol.* 2006;l9:309A (abstract #1439).
5. Laskin WB, Miettinen M, Fetsch JF. Tumoral calcinosis-like lesions of the distal extremities. *Mod Pathol.* 2006;19:14A (abstract #49).
6. Lasota J, Stachura J, Miettinen M. GISTs with PDGFRA exon 14 mutations represent subset of clinically favorable gastric tumors with epithelioid morphology. *Mod Pathol.* 2006;19:14A (abstract #50).
7. Miettinen M, Makhlouf HR, Sobin LH, Lasota J. Gastrointestinal stromal tumors (GISTs) of the jejunum and ileum – A clinicopathological, immunohistochemical and molecular genetic study of 906 cases prior to imatinib with long-term follow-up. *Mod Pathol.* 2006;19:15A (abstract #56).
8. Moosavi CA, Al-Nahar L, Fanburg-Smith JC. Fibroosseous pseudotumor of the digits (FOPD): 44 new cases. *Mod Patho*l. 2006;19:15A (abstract #57).

Projects

1. Classification of unusual vascular tumors.
2. Genotypic and phenotypic characterization of myogenic tumors.
3. Fibrosarcomatous transformation of dermatofibrosarcoma protuberans.
4. Vascular tumors of bone
5. Fibmymyxoid neoplasms of soft tissue and bone
6. Epithelial differentiation in synovial and epithelioid sarcoma and related tumors.
7. Molecular pathologic analysis of soft tissue tumors.
8. Triton tumors.
9. Malignant peripheral nerve sheath tumors arising in neurofibroma.
10. Pathology of fibromas.
11. Cartilaginous neoplasms of soft tissues.

Collaborators

Civilian

1. Sonja Erikson-Steigen, University of Tromso, Norway
2. Zoran Gatalica, Creighton University, Omaha, Neb
3. Matthew Hurford, Temple University, Philadelphia
4. Dhanpat Jain, Yale University, New Haven
5. William B. Laskin, Northeastern University, Chicaco, Ill
6. Janusz Limon, Medical Academy of Gdansk, Poland
7. Timothy O'Leary, Department of Veterans Affairs
8. Michal Michal, Faculty Hospital, Pilsen, Czech Republic
9. Fabrizio Remotti, College of Physicians and Surgeons, New York
10. Janusz Rys, Oncology Hospital, Krakow, Poland
11. Maarit Sarlomo-Rikala, University of Helsinki, Finland
12. Brian Rubin, University of Washington, Seattle
13. Jerzy Stachura, Jagellonian University, Krakow, Poland
14. Bartosz Wasag, Medical Academy of Gdansk, Poland
15. Sharon W. Weiss, Emory University, Atlanta, Ga

Interdepartmental

1. Division of Gastrointestinal Pathology
2. Department of Neuropathology
3. Department of Veterinary Pathology
4. Department of Hematologic and Lymphatic Pathology
5. Department of Pulmonary and Mediastinal Pathology
6. Department of Radiologic Pathology
7. Department of Molecular Pathology
8. Department of Genitourinary Pathology

PROFESSIONAL ACTIVITIES

Editorial

Department members reviewed 65 manuscripts for peer-reviewed scientific journals during 2005 and held the following editorial board memberships or editorships:

1. *American Journal of Surgical Pathology*, M Miettinen.
2. *Applied Immunohistochemistry and Molecular Morphology,* M Miettinen.
3. *Annals of Diagnostic Pathology*, JC Fanburg-Smith, M Miettinen.
4. *Archives of Pathology*, Section Editor for Soft Tissue, J Fetsch, M Miettinen.
5. *Human Pathology*, J Lasota, M Miettinen.
6. *Virchows Archiv*, M Miettinen.

Academic Peer Review

Four academic peer reviews for promotion were completed, (Dr. Fetsch 2, Dr. Miettinen 2).

Robert D. Foss, CAPT, DC, USN
Chair
Date of Appointment — 16 September 2004

DEPARTMENT OF ORAL AND MAXILLOFACIAL PATHOLOGY

STAFF

Dental

Robert D. Foss CAPT, DC, USN, Chair
Christopher G. Fielding, COL, DC, USA
Stephen B. Williams, COL, DC, USA (transferred in June)
Duane R. Schafer, CAPT, DC, USN (arrived in July)
Jose Colon, DMD
Mikelle Kuehn, MAJ, USAF, DC (transferred in October)
David Flint, LTCOL, DC, USA resident
Lisa Franklin, MAJ, DC, USA resident

Administrative

Patricia Ashburn, Secretary

IMPACT:

- Deployments of members of the Department of Oral and Maxillofacial Pathology on Operation Iraqi Freedom forensic missions in support of the Office of the Armed Forces Medical Examiner (OAFME) included a number of high profile mass disasters and support of Operation Iraqi Freedom. These forensic missions provide rapid, accurate identification of disasters victims that result in the timely return of remains to next of kin.
  In 2006, 1005 postmortem dental examinations were performed at the Carson Mortuary at Dover AFB, Del, including active duty OIF or OEF casualties, civilian deaths in theater, Iraqi enemy prisoner of war and other military current deaths worldwide. Also in 2006, 609 antemortem dental records were available for review resulting in 589 "positive" identifications, 9 "consistent with" identification, and 11 "unidentified."
- Departmental off-site forensic dental identification training laboratories were deployed to 24 military commands and provided 7,658 man-hours of readiness training for future mass casualty disasters. These laboratory exercises represent a major source of forensic dental identification training in the US Armed Forces.
- At the annual meeting of the American Academy of Oral and Maxillofacial Pathology, the AFIP Slide Seminar continues to be the most popular continuing education course and it is always fully subscribed. In its 27th year, the seminar promotes the Department and Registry of Oral and Maxillofacial Pathology as a world leader in the specialty of Oral and Maxillofacial Pathology.
- The third year of the residency program in oral and maxillofacial pathology, Naval Postgraduate Dental School, conducted at the AFIP, is structured to provide opportunities for research, slide and case review with staff, both individually and collectively. Presentation of a research project by the residents at the annual meeting of the American Academy of Oral and Maxillofacial pathology promotes our missions of education and research.
- The department chair is Associate Director, Navy, AFIP, overseeing 49 assigned Navy personnel. COL Fielding is the Army Surgeon General's Consultant for Oral Maxillofacial Pathol-

ogy and Forensic Dentistry. CAPT Schafer is the Consultant to the Surgeon General of the Navy for Oral and Maxillofacial Pathology and for Forensic Odontology.

DIAGNOSTIC CONSULTATION

Cases	Completed
Military	469
Army (214)	
Navy (137)	
Air Force (118)	
Fmil (0)	
Federal	302
VA (302)	
USPHS (0)	
OFA (0)	
Civilian	605
Interdepartmental	140
Total	1,517

Our Department consults on the wide variety of pathologic processes that affect the oral mucosa, jaws, major and minor salivary glands and associated structures in the maxillofacial region. These processes include, but are not limited to, odontogenic cysts and tumors, fibro-osseous lesions, salivary gland neoplasia, lymphoid processes, soft tissue tumors and metastatic disease. We perform consultative services for US Army, Navy, and Air Force medical treatment facilities, VA medical centers, and US Public Health Service medical treatment centers, as well as civilian facilities in the US and the world.

Our department received 1377 outside consultation cases in 2006. Major changes in diagnosis were made in 18 cases, minor changes in 409 cases, and no change in the contributor diagnosis in 854 cases. We received 76 cases with no contributor diagnosis; 15 cases were recorded without coding. Turnaround time averaged 4.5 days.

Deployments

Members of the Department of Oral and Maxillofacial Pathology maintain a readiness status, prepared to deploy within 4 hours of notification. In 2006, the Department had 81 deployments to support the Office of the Armed Forces Medical Examiner with rapid, accurate and reliable dental identification. This figure represents a 44% increase in deployments from the previous year. Using state of the art digital technology, the identification process was complete within hours of the postmortem examination. This vital service facilitates the rapid return of remains to the family.

Forensic Missions to Dover AFB for Operation Iraqi Freedom

RD Foss—4

SB Williams—1

CG Fielding—13

J Colon—18

M Stokes—6

D Shafer—19

J Castle—9

P Welch—1

D Flint—2

W Lyons—1

EDUCATION

Presentations and Seminars

The Department of Oral and Maxillofacial Pathology provides programs that range from national and international meetings to in-house professional development.

Courses

Department staff participated in 12 AFIP/ARP courses, including the department's major course offerings, Forensic Dental Identification and Emerging Technologies, Surgical Oral and Maxillofacial Pathology, and Clinical Oral and Maxillofacial Pathology, for a total of 12,000 man-hours of training. The staff participated in 13 non-AFIP courses, providing an additional 1,809 man-hours of education. Portable forensic dental identification workshop kits were deployed 22 times for 7,020 man-hours of training of military personnel.

Trainees

The department had 2 third-year residents in oral and maxillofacial pathology during 2006. The department had 4 visiting residents for 100 man-days of training.

Educational Aids

The Registry of Oral and Maxillofacial Pathology Case of the Month course is a Web-accessible online continuing education program that is available by subscription. It is used by pathologists for peer review and education, and is recognized by the American Board of Oral and Maxillofacial Pathology for fulfillment of the continuing competency requirements for maintenance of board certification. Each case is originally presented as an unknown, then followed up with a presentation of participant diagnoses, AFIP diagnosis, and a discussion. Twelve new cases are posted each year. Older cases are archived on the Web site and are available for study. Three deployable forensic dental identification training laboratories are available and were deployed to 24 military commands and provided 7,658 man-hours of training in 2006.

Continuing Education

Department staff attended the following training courses during 2006:

1. Annual Meeting of the American Academy of Oral and Maxillofacial Pathology (AFIP).
2. Weekly Professional Staff Conference (AFIP).
3. Oral and Maxiollofacial Pathology/Otolaryngologic and Endocrine Pathology Conference (AFIP).
4. Oral and Maxillofacial Pathology/Radiology Pathology Conference (AFIP).
5. Triservice Dental Educators Conference (DENCOM).
6. California Tumor Tissue Registry/ Salivary Pathology, San Diego, Calif.

Presentations

1. January 2006: Washington DC, AFIP, "Oral and maxillofacial pathology for radiologists," CG Fielding.
2. January 2006: Rockville, Md, George Washington University, Principles of Forensic Science Course Introduction to Forensic Dentistry, "Personal identification and bite mark analysis," CG Fielding.
3. January 2006: Bethesda, Md, Naval Postgraduate Dental School, "Bone pathology of the craniofacial skeleton," CG Fielding.
4. January 2006: Bethesda, Md, Naval Postgraduate Dental School, "Soft tissue tumors," RD Foss.
5. February 2006: San Diego, Calif, Naval Dental Center Southwest "Hematology and lymphoid tumors of the head and neck," RD Foss.
6. February 2006: San Diego, Calif, Naval Dental Center Southwest, "Forensic dentistry overview," RD Foss.
7. February 2006: Washington DC, AFIP, Otolaryngic Pathology Course, "Malignant bone tumors," RD Foss.
8. February 2006: Washington DC, AFIP, "Oral and maxillofacial pathology for radiologists," CG Fielding.
9. February 2006: Bethesda, Md, Naval Postgraduate Dental School, "Bone pathology of the craniofacial skeleton," CG Fielding.
10. March 2005: Bethesda, Md, AFIP, 41st Annual Forensic Dental Identification and Emerging Technologies Workshop, "Introduction to forensic dentistry," J Colon.
11. March 2006: Washington DC, AFIP, Anatomic Pathology Course, "Salivary gland tumors," RD Foss.
12. March 2006: Washington DC, AFIP, Anatomic Pathology Course, "Odontogenic cysts and tumors," RD Foss.
13. April 2006: Washington, DC, WRAMC Post Professional Short Course in Oral Pathology, Oral Medicine, and Oral Diagnosis, "Benign and malignant bone lesions of the jaws," CG Fielding.

14. April 2006: Bethesda, Md, Naval Postgraduate Dental School, “Salivary gland pathology,” M Stokes.
15. April 2006: Bethesda, Md, National Naval Medical Center, “Oral pathology: clinical pathologic correlation,” M Stokes.
16. April 2006: San Antonio, Tex, American Academy of Oral and Maxillofacial Pathology, AFIP Seminar, “Atypical myoid tumor, Ewing sarcoma,” RD Foss.
17. April 2006: San Antonio, Tex, American Academy of Oral and Maxillofacial Pathology, AFIP Seminar, "Carcinoma ex Warthin tumor" and "Xanthogranulomatous sialadenitis," CG Fielding.
18. 2006, San Antonio, Tex, American Academy of Oral and Maxillofacial Pathology, AFIP Seminar, “Synovial sarcoma (monophasic), fetal rhabdomyoma,” J Colon.
19. April 2006: San Antonio, Tex, AAOMP AFIP Seminar, “Metastatic malignant melanoma, (balloon cell variant), odontogenic ameloblastic sarcomatoid carcinoma,” SB Williams.
20. April 2006: San Antonio, Tex, American Academy of Oral and Maxillofacial Pathology, AFIP Seminar, “Embryonal rhabdomyosarcoma, central odontogenic fibroma,” M Stokes.
21. April 2006: Washington DC, AFIP, “Oral and maxillofacial pathology for radiologists,” CG Fielding.
22. April 2005: Washington DC, Lecture at the Army Oral Pathology Short Course, “Syndromes of the head and neck,” M Stokes.
23. April 2006: Rockville, Md, George Washington University, Principles of Forensic Science Course Introduction to Forensic Dentistry, “Personal identification and bite mark analysis,” CG Fielding.
24. .July 2006: Rockville, Md, George Washington University, Principles of Forensic Science Course Introduction to Forensic Dentistry, “Personal identification and bite mark analysis,” CG Fielding.
25. August 2006: Columbus, Ohio, Ohio State Dental Association Annual Meeting, “Forensic odontology,” DR Schafer.
26. August 2006: Ft Jackson, SC, One-Year AEGD Residents, “Forensic odontology workshop,” CG Fielding.
27. August 2006: Ft Jackson, SC, Ft Jackson USA DENTAC, “Dermatology for the dental practitioner,” CG Fielding.
28. August 2006: Ft Benning, Ga, One-Year AEGD Residents, “Forensic odontology workshop,” CG Fielding.
29. September 2006: Rockville, Md, George Washington University, Principles of Forensic Science Course Introduction to Forensic Dentistry, “Personal identification and bite mark analysis,” CG Fielding.
30. October 2006: Washington, DC, AFIP Grand Rounds Videoteleconference, “Cystic lesion of the jaws,” DR Schafer.
31. November 2006: Ft Campbell, Ky, One-Year AEGD Residents, “Forensic odontology workshop,” CG Fielding.
32. November 2006: Ft Campbell, Ky, Fort Campbell USA DENTAC, “Dermatology for the dental practitioner,” CG Fielding.
33. November 2006: Clarksville, Tenn, 7th District Tennessee Dental Association, “Case files for the Us Army Forensic Identification Laboratory,” CG Fielding.
34. November 2006: Bethesda, Md, Uniformed Services University of Health Sciences General Pathology Course, “Oral pathology,” DR Schafer.
35. November 2006: Silver Spring, Md, AFIP Surgical Pathology Course, “Oral cancer,” DR Schafer.
36. November 2006: Silver Spring, Md, AFIP Surgical Pathology Course, “White lesions and epithelial dysplasia,” DR Schafer.
37. November 2006: Silver Spring, Md, AFIP Surgical Pathology Course, “Squamous cell carcinoma variants,” DR Schafer.
38. November 2006: Silver Spring, Md, AFIP Surgical Pathology Course, “Practical oral pathology,” CG Fielding.
39. November 2006: Silver Spring, Md, AFIP Surgical Pathology Course, “Differential diagnosis of vessiculo-ulcerative lesions,” CG Fielding.
40. November 2006: Silver Spring, Md, AFIP Surgical Pathology Course, “Clinical pathologic conferences,” CG Fielding.

41. December 2005: Washington, DC, George Washington University, "Introduction to oral and maxillofacial pathology," J Colon.

RESEARCH

Publications

Journal Articles:

1. Folk GS, Abbondanzo SL, Childers EL, Foss RD. Plasmablastic lymphoma: a clinicopath logic correlation. *Ann Diagn Pathol*. 2006;10:8-12.
2. Williams SB, Ellis GL, Warnock GR. Sialoblastoma: a clinicopathologic and immunohistochemical study of 7 cases. *Ann Diagn Pathol*. 2006 Dec;10(6):320-326.

Abstracts

1. Folk G, Williams SB, Foss RD, Fanburg-Smith J. Oral and maxillofacial sclerosing epithelioid fibrosarcoma: report of five cases. American Academy of Oral and Maxillofacial Pathology Annual Meeting. San Antonio, Tex, April 2006.
2. Kernig M, Fetsch J, Miettinen M, Foss RD, Williams SB. Infantile fibromatosis of the tongue: a clinicopathologic and immunohistochemical study of 11 cases. American Academy of Oral and Maxillofacial Pathology Annual Meeting. San Antonio, Tex, April 2006.

Book Chapters

1. Foss, RD. Cervical lymphadenitis. In: Hupp JR, Williams TP, Firriolo FJ, eds. *Dental Clinical Advisor*. St. Louis:Mosby; 2006, p. 246.
2. Foss RD. Dermoid cyst. In: Hupp JR, Williams TP, Firriolo FJ, eds. *Dental Clinical Advisor*. St. Louis:Mosby; 2006, p. 253.
3. Foss RD, Finkelstein MW. Fibrous dysplasia. In: Hupp JR, Williams TP, Firriolo FJ, eds. *Dental Clinical Advisor*. St. Louis:Mosby; 2006, p. 255-256.
4. Foss RD, Finkelstein MW. Osteoblastoma. In: Hupp JR, Williams TP, Firriolo FJ, eds. *Dental Clinical Advisor*. St. Louis:Mosby; 2006, p. 301.
5. Fielding CG. Central giant cell granuloma. In: Hupp JR, Williams TP, Firriolo FJ, eds. *Dental Clinical Advisor*. St. Louis:Mosby; 2006, p. 245.
6. Fielding CG. Cherubism. In: Hupp JR, Williams TP, Firriolo FJ, eds. *Dental Clinical Advisor*. St. Louis:Mosby; 2006, p. 247.
7. Fielding CG. Cleidocranial dysplasia. In: Hupp JR, Williams TP, Firriolo FJ, eds. *Dental Clinical Advisor*. St. Louis:Mosby; 2006, p. 249.
8. Fielding CG. Hyperparathyroidism. In: Hupp JR, Williams TP, Firriolo FJ, eds. *Dental Clinical Advisor. St. Louis:Mosby; 2006, p. 271.*
9. Fielding CG. Squamous odontogenic tumor. In: Hupp JR, Williams TP, Firriolo FJ, eds. *Dental Clinical Advisor*. St. Louis:Mosby; 2006, p. 325.

Active Projects:

1. UBMB - Sialoblastoma.
2. UBKH - Atypical chondroid neoplasia of the jaws.
3. UBEY - Clear cell odontogenic tumors.
4. UBWK - Clinical Pathologic Features of oral plasmablastic lymphomas.
5. UBDZ - Mesenchymal Lesions of oral region.
6. UBIG - Diagnosis of malignant salivary gland tumors.
7. UB5H - Reticular myoepithelioma.
8. UB5L - Lymphoepithelial-like carcinoma of the skin from the head and neck.
9. UB5Y - Pathology of the uvula: 34 year review from the AFIP.
10. UBXL - Benign fibroblastic tumors.

Collaborators:

Civilian:

Jennifer Hunt, MD, genotyping of odontogenic tumors.

Interdepartmental:

1. Julie Fanburg-Smith, MD, soft tissue tumors of the head and neck.
2. John Fetsch, MD, benign fibroblastic lesions.

Committees—AFIP

RD Foss
Executive Committee, Institutional Animal Care and Use Committee, Quality Assurance Committee.

DR Schafer
Safety Committee, Library Committee.

J Colon
Institutional Review Board.

C. G. Fielding
Credentials Committee.

Faculty

1. George Washington University Forensic Sciences Master's Program, CG Fielding.
2. Uniformed Services University Department of Pathology, DR Schafer.

Offices/Committee Memberships other than AFIP:

CG Fielding
Consultant to the Surgeon General (Army) in Oral and Maxillofacial Pathology, Consultant to the Surgeon General (Army) in Forensic Dentistry.

DR Schafer
Consultant to Navy Surgeon General in Oral and Maxillofacial Pathology, Consultant to Navy Surgeon General in Forensic Dentistry.

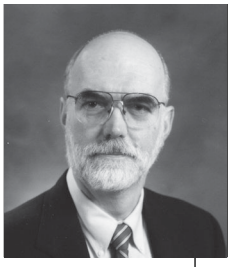
PROFESSIONAL ACTIVITIES

Official Trips:

1. January 2006: San Antonio, Tex, Teaching Chiefs Conference, planning curriculum and support strategies for Army graduate dental education, CG Fielding. (AMEDD)
2. February 2006: American Academy of Forensic Sciences, Annual Meeting, Seattle, Wash, CG Fielding. (AFIP)
3. April 2006: San Antonio, Tex, American Academy of Oral and Maxillofacial Pathology, RD Foss, SB Williams, CG Fielding, M Kuehn, J Colon. (AFIP)
4. June 2006: University Hospital of Cincinnati, Consultant visit, 2-day presentation of Forensic Dentistry to 1 year General Practice Residency Program, CG Fielding.
5. July 2005: Ft Jackson, SC, Consultant visit, 2-day presentation of Oral Pathology/Forensic Dentistry to 1 year Advanced Educational Program in General Dentistry residency plus 1 hour of DENTAC CE (Ft Jackson DENTAC), CG Fielding.
6. July 2006: Ft Benning, Ga, Consultant visit, 2-day presentation of Oral Pathology/ Forensic Dentistry to 1 year Advanced Educational Program in General Dentistry residency plus one hour of DENTAC CE (Fort Benning DENTAC), CG Fielding.
7. September 2006: Jackson Hole, Wyo. WESTOP, Case exchange and continuing educational program for teachers of Oral Pathology, case studies of "Sanguinaria induced leukoplakia," and "Juvenile ossifying fibroma, psammomatoid-type," RD Foss, CG Fielding.
8. November 2006: Ft Campbell, Ky, Consultant visit, 2-day mini-workshop in Forensic Dentistry to 1 year Advanced Educational Program in General Dentistry residency, Support for DENTAC Continuing Education Program , plus 1 hour DENTAC CE "Dermatology for the Dental Practitioner," plus 2 hour CE presentation to 7th District Tennessee Dental Association, "Case files from the US Army Central Identification Laboratory," (Ft Campbell DENTAC), CG Fielding.
9. October 2006: Tampa, Fla, American Board of Oral and Maxillofacial Pathology, (Navy Medical Education and Training Command), J Colon (AFIP), M Kuehn.

GOALS

Our department supports the goals and missions of the AFIP. In addition, we aim to increase the number of military and other government agency contributors and military and other government agency attendees at our short courses and thereby increase our military value.



Dennis K. Heffner, MD
Chair
Date of Appointment — 1 September 1984

DEPARTMENT OF ENDOCRINE AND OTORHINOLARYNGIC/HEAD-NECK PATHOLOGY

STAFF

Medical

Dennis K. Heffner, MD, Chair
Clara S. Heffess, MD, Chief, Division of Endocrine Pathology
Jacqueline A. Wieneke, MD, Chief, Division of Otorhinolaryngic/Head-Neck Pathology

Administrative

(D) Frank Flannery, Jr, Administrative Assistant

IMPACT

Approximately 30% of our consultation cases resulted in a change of diagnosis from the contributors' impressions, most with a significant (and sometimes crucial) effect on patient treatment decisions. The quality and impact of our diagnostic consultations are seen most clearly in those rare or difficult cases where our diagnostic experience could not have been matched anywhere in the world.

CONSULTATION

The department consults on difficult or controversial histopathologic diagnostic cases received from US military medical commands or facilities, VA medical centers, US Public Health centers, and nongovernmental civilian hospitals in the United States and abroad. The vast majority of cases are active surgical pathology cases with patient treatment decisions awaiting the consultative diagnostic evaluation. Our staff deals with a broad spectrum of pathologic conditions, consisting of a multitude of disease entities affecting the upper respiratory tract, ear, and adjacent or related anatomic areas of the head and neck, and diseases of the pancreas, adrenal, thyroid and parathyroid glands.

Cases	***Completed***
Military	581
Army (303)	
Navy (149)	
Air Force (129)	
Federal	673
VA (673)	
USPHS (0)	
Civilian	1,097
Interdepartmental	201
Total	2,552

EDUCATION

Courses:

A 4-week Otolaryngic Basic Science Course was presented in March 2006, attended by 12 military and 9 civilian surgeons. Approximately one fourth of the course time was composed of pathology instruction provided by departmental staff, totaling 840 man-hours of instruction.

Presentations

1. January 2006: Washington, DC, Georgetown University Medical Center, "Adrenal, thyroid, and parathyroid pathology," JA Wieneke.
2. February 2005: Washington, DC, AFIP, 44rd Annual ENT Basic Science Course, "Pathology in the management of head and neck patients," JA Wieneke.
3. March 2005: Washington, DC, AFIP, 16th Annual Anatomic Pathology Review Course, "Otolaryngic-head and neck pathology," JA Wieneke.

RESEARCH

Publications

Book Chapters

1. Thompson LDR, Heffess CS. Non-neoplastic lesions of the pituitary gland. In: Thompson LDR, ed. *Endocrine Pathology: Foundations in Diagnostic Pathology Serie*s. Goldblum JR, series ed. London: Elsevier; 2006.
2. Thompson LDR, Heffess CS. Benign neoplasms of the pituitary gland. In: Thompson LDR, ed. *Endocrine Pathology: Foundations in Diagnostic Pathology Series*. Goldblum JR, series ed. London: Elsevier; 2006.
3. Thompson LKDR, Heffess CS. Malignant neoplasms of the pituitary gland. In: Thompson LDR, ed. *Endocrine Pathology: Foundations in Diagnostic Pathology Series*. Goldblum JR, series ed. London: Elsevier; 2006.
4. Wieneke JA, Lack EE. The adrenal glands. In: Bostwick DG, Eble JN, eds. *Urologic Surgical Pathology*. 2nd ed. St. Louis, Mo: Mosby; 2006.

PROFESSIONAL ACTIVITIES

Manuscripts Reviewed

In 2006 the staff reviewed numerous professional articles for suitability for publication in peer-reviewed professional journals.

Editorial Boards and Committees

1. Associate Editor, *Endocrine Patholog*y, CS Heffess
2. Editorial Board, *Ear, Nose, and Throat Journal*, JA Wieneke
3. Editorial Board, *Annals of Diagnostic Patholog*y, DK Heffner.
4. American Joint committee on Cancer: Genitourinary Task Force cochairman: Tumor staging system, Adrenal Section, JA Wieneke.
5. Institutional Review Board, AFIP, JA Wieneke.

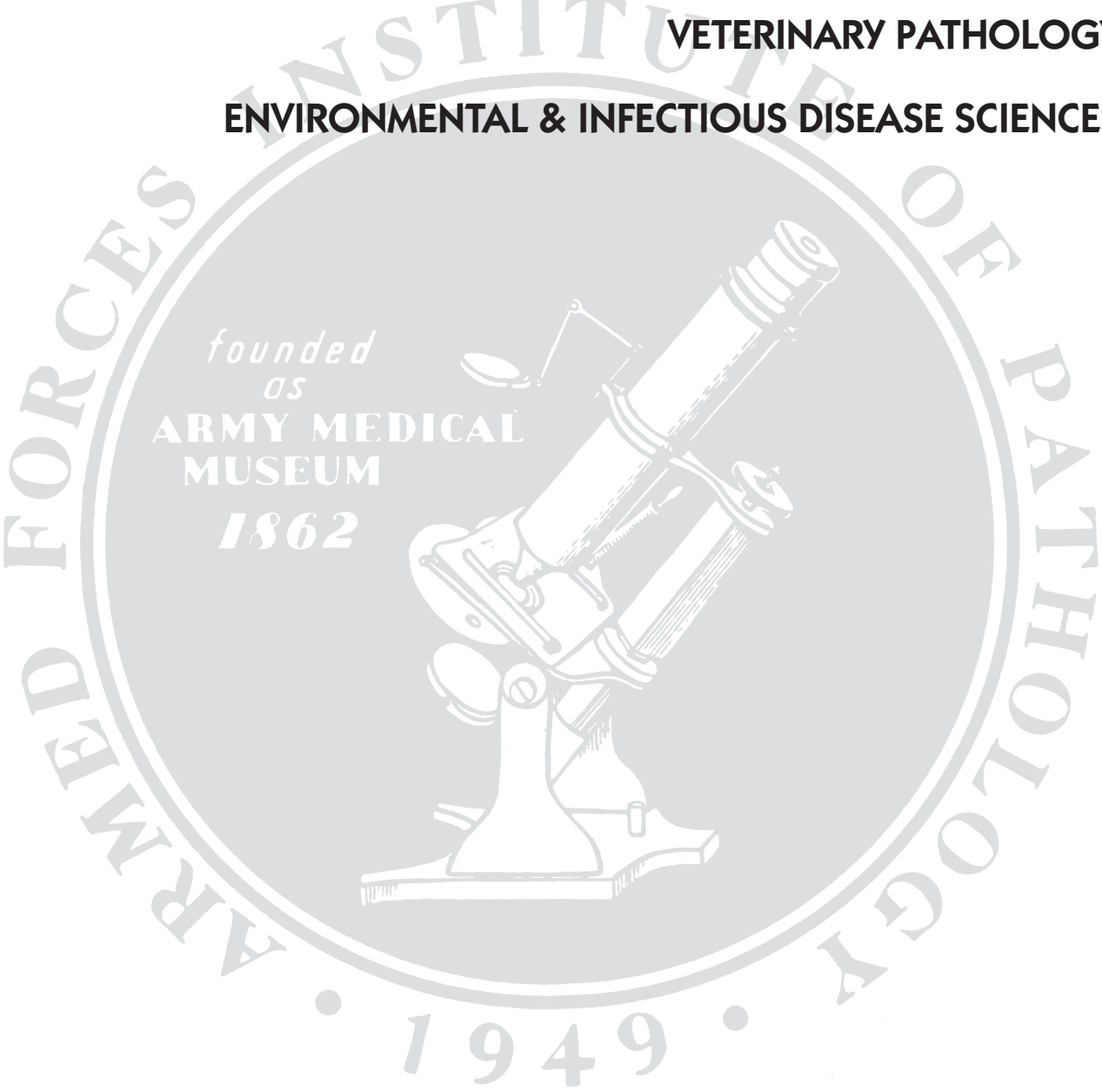
ADVANCED PATHOLOGY

GROUP 3

HEMATOPATHOLOGY

VETERINARY PATHOLOGY

ENVIRONMENTAL & INFECTIOUS DISEASE SCIENCES



Nadine S. Aguilera, MD
Chair
Date of Appointment – March 2005

DEPARTMENT OF HEMATOPATHOLOGY

STAFF

Medical:

Nadine S. Aguilera, MD, Chair
Aaron Auerbach, MD, Staff
Bong Kim, MD, Staff
(D) Daniel Schaffer LTC, MC, USA, Fellow
(A) Ellina Kalandarova, MAJ, MC, USA, Fellow

Administrative:

(D) Michele L. Kelly, Administrator
Tasha Portee, Administrator

IMPACT:

The Department of Hematopathology makes available to the DoD, VA and Civilian hospitals expert consultations in lymph node, spleen and bone marrow. We provide comprehensive consultation in conjunction with other departments at the AFIP and use up-to-date technology for the best possible diagnosis. We are the only ACGME accredited hematopathology training program in the 3 branches of the military (Army, Navy and Air Force) providing training for the subsequent staffing of the military hospitals with qualified competent individuals in hematopathology. We also contribute to the education of military residents through lectures to the residents of the National Capital Consortium and rotations in the Department. Our active research is of benefit to military, VA and civilian health care.

CONSULTATION

The Department of Hematopathology renders expert consultation on cases involving the pathology of the hematopoietic system including lymph node, spleen and bone marrow. Cases are submitted by the DOD and VA, and by civilian hospitals worldwide. Staff members participate in various local and national educational and research endeavors involving topics related to hematopathology.

Cases	***Completed***
Military	264
Army (135)	
Navy (65)	
Air Force (64)	
Federal	638
VA (637)	
Other (1)	
Civilian	257
Interdepartmental	1,090
Total	2,249

EDUCATION

Courses

April 2006, Rockville Md, Department staff participated as staff and presented 5 lectures at the AFIP Anatomic Pathology Review Course.

Trainees

The department educated 2 military fellows, from January 2006 to June 2006, and one from July 2006 to December 2006. We had 2 residents rotating for 1 month from Walter Reed Army Medical Center. In 2006, we completed 306 training days with responsibilities involving service work (under the constant supervision of a credentialed staff pathologist), research, and lecturing.

The department has been accredited by the Accreditation Council for Graduate Medical for a Hematopathology fellowship program and education for 2 hematopathology fellows-in-training has been approved. The program utilizes the clinical laboratories and staff at WRAMC and the National Naval Medical Center in a combined institutional fellowship headed at the AFIP. It is the only accredited military graduate medical education program in hematopathology. Our program was inspected in November of 2001 by the ACGME.

Educational Aids

The department maintains slide study sets (under protocol), Kodachrome sets, and a Web site maintained by a staff member. All study sets and tools were updated to the WHO classification in 2002 and are updated in an ongoing fashion.

Faculty Appointments

Adjunct Associate Professor, USUHS, NS Aguilera.

Presentations

1. January 2006: Washington DC, National Capital Consortium Pathology Resident lecture, “Tumors of the liver: an update with emphasis on molecular pathology,” A Auerbach.
2. January 2006: Washington DC, National Capital Consortium Pathology Resident lecture “Introduction to hematopathology,” A Auerbach.
3. February 2006: Washington DC, AFIP Teleconferencing for the VA, “An update on lymphoma classification,” A Auerbach.
4. February 2006: Washington DC, National Capital Consortium Pathology Resident lecture “Common problems in hematopathology,” A Auerbach
5. March 2006: Rockville Md, AFIP Anatomic Pathology Review Course, “Small B cell lymphoma and diffuse large B cell lymphoma,” A Auerbach.
6. March 2006: Rockville Md, AFIP Anatomic Pathology Review Course, "T and NK-cell lymphomas,” NS Aguilera.
7. March 2006: Rockville Md, AFIP Anatomic Pathology Review Course, “Hodgkin lymphoma,” NS Aguilera.
8. March 2006: Rockville Md, AFIP Anatomic Pathology Review Course, “Benign reactive lymphadenopathy,” NS Aguilera.
9. April 2006: Washington DC, National Capital Consortium Pathology Resident lecture, “Inflammation and repair,” A Auerbach.
10. April 2006: Philadelphia Pa, Osler Institute, “Liver pathology,” A Auerbach
11. April 2006: Philadelphia Pa, Osler Institute, “Cardiac pathology,” A Auerbach
12. April 2006: Philadelphia Pa, Osler Institute, “Inflammation and repair,” A Auerbach
13. April 2006: Philadelphia Pa, Osler Institute, “Neoplasia,” A Auerbach
14. May 2006: Washington DC, AFIP Professional Staff Conference, “New WHO-EORTC classification for cutaneous lymphomas,” B Kim.
15. May 2006: Washington DC, National Capital Consortium Pathology Resident lecture, “Small B cell lymphoma,” A Auerbach.
16. July 1, 2006, Washington DC, National Capital Consortium Pathology Resident lecture, “Immunosecretory disorders,” A Auerbach.
17. August 2006: Tampa Fla, Osler Institute, “Liver pathology,” A Auerbach.
18. August 2006: Tampa Fla, Osler Institute, “Cardiac pathology,” A Auerbach.
19. August 2006: Tampa Fla, Osler Institute, “Inflammation and repair,” A Auerbach.
20. August 2006: Tampa Fla, Osler Institute, “Neoplasia,” A Auerbach.
21. September 2006: Bethesda Md, Gastrointestinal and Hepatic course of the AFIP, “Lymphoma of the gastrointestinal tract,” A Auerbach.

22. October 2006: Washington DC, National Capital Consortium Pathology Resident lecture, "Reactive lymph node pathology," NS Aguilera.
23. October 2006: Washington DC, National Capital Consortium Pathology Resident lecture, "World Health Organization Classification of small B cell lymphomas," A Auerbach.
24. October 2006: Washington DC, National Capital Consortium Pathology Resident lecture, "Hodgkin lymphoma," NS Aguilera.
25. October 2006: Washington DC, National Capital Consortium Pathology Resident lecture, "World Health Organization Classification of large B cell lymphomas," A Auerbach.
26. October 2006: Washington DC, National Capital Consortium Pathology Resident lecture, "Cutaneous lymphomas," B Kim.
27. October 2006: Washington DC, National Capital Consortium Pathology Resident lecture, "Introduction to bone marrow biopsies," A Auerbach.
28. October 2006: Washington DC, National Capital Consortium Pathology Resident lecture, "T-and NK-cell lymphoma," NS Aguilera.
29. October 2006: Washington DC, National Capital Consortium Pathology Resident lecture, "Plasma cell disorders," A Auerbach.
30. December 2006: Cincinnati Ohio, University of Cincinnati Grand Rounds, "Gastrointestinal infiltrates in 2007: a trip to the stars," A Auerbach.

RESEARCH

Publications

Journal Articles

1. Aguilera NSI, Chen J, Bijwaard KE, Director-Myska AE, Barekman CL, Millward C, Lichy J, Abbondanzo SL. Gene rearrangement and comparative genomic hybridization studies of classic Hodgkin lymphoma expressing T-cell antigens. *Arch Pathol Lab Med*. 2006;130:1772-1779.
2. Bahler DW, Kim BK, Gao A, Swerdlow SH. Analysis of immunoglobulin V genes suggests cutaneous marginal zone B-cell lymphomas recognize similar antigens. *Br J Haematol*. 2006;132(5):571-575.
3. Cooper PB, Auerbach A, Aguilera NS, Adair C, Moores L, Geyer D, Rushing EJ. Rare primary CNS anaplastic large cell lymphoma in an immunocompetent adult: a clinical-pathologic case report and review of the literature. *Clin Neuropatho*l. 2006;25:232-236.
4. Cassarino DS, Miller W, Auerbach A, Sherry R, Duray PH. The effects of GP-100 and tyrosinase vaccination on atypical nevi in melanoma patients. *J Cutan Pathol*. 2006;33(5):335-342.
5. Cooper PB, Auerbach A, Moores L, Rushing EJ. Rare primary CNS anaplastic large cell lymphoma in an immunocompetent adult: case report and review of the literature. *Clin Neuropathology*. 2006;25(5):232-236.
6. Wongchaowart NT, Kim BK, Hsi ED, Swerdlow SH, Tubbs RR, Cook JR. t(14;18)(q32;q21) involving IGH and MALT1 is uncommon in cutaneous MALT lymphomas and primary cutaneous diffuse large B-cell lymphomas. *J Cutan Pathol*. 2006;33(4):286-292.

Other Publications

Kovarik C, Auerbach A, Barrett TL, Cassarino DS. American Society of Dermatopathology. Acral myxoinflammatory fibroblastic sarcoma, an immunohistochemical study. October 26, 2006, Chicago Ill.

Projects:

The department has 6 active research protocols as of December 31, 2006 and several ongoing research projects, including the following:

1. Atypical follicular hyperplasia in children.
2. Splenic non-lymphomatous neoplasms.
3. Lymphoplasmacytoid lymphoma/immunocytoma.
4. Diffuse large B-cell lymphoma, two unusual subtypes.
5. Castleman lymphadenopathy with monoclonal plasma cells.
6. T-cell expression in Hodgkin lymphoma.
7. Follicular lymphoma, grade 3, composed of large centrocytes.

Collaborators:

Military/Federal:
Elaine S. Jaffe, MD, National Institutes of Health, Histiocytic Neoplasms.

Civilian:
1. Steven H. Swerdlow, MD, University of Pittsburgh, Immunocytoma, interfollicular small lymphocytic lymphoma and lymphoplasmacytoid lymphoma/immunocytoma.
2. Frank Bauer, MD, St. Francis Hospital, Hartford Conn, Cutaneous follicle center lymphoma.

Interdepartmental:
A Levy, Department of Radiologic Pathology.

Military:
With the accreditation of our fellowship program, we have added a collaborative education mission with NNMC and WRAMC as well as an education mission with the National Capital Consortium Pathology Residency.

PROFESSIONAL ACTIVITIES

Official Trips:
1. February 2006: Atlanta Ga, United States and Canadian Academy of Pathology, NS Aguilera, A Auerbach.
2. November 2006: Orlando Fla, Society of Hematology, B Kim.

Committees (Intramural):
1. Institutional Review Board, NS Aguilera (Chair).
2. Graduate Medical Education Committee, NS Aguilera.

Continuing Education:
The department staff attended the following training courses during 2006:
1. Annual US and Canadian Academy of Pathology.
2. AFIP Weekly Professional Staff Conference.
3. AFIP Annual Anatomic Pathology Review and Update Course.
4. American Society of Hematology.

Dale G. Dunn, COL, VC, USA
Chair
Date of Appointment — 1 September 2003

DEPARTMENT OF VETERINARY PATHOLOGY

STAFF

Administrative:

Terrell W. Blanchard, LTC(P), VC, USA, Assistant Chairman
Duane A. Belote, LTC, VC, USA, Special Projects Officer
Krista S. Spellum, MSG, USA, NCOIC
(A) Amelia R. Simms, Department Secretary
(D) Martie A. Koerner, Department Secretary
(D) Teresa G. Cannady, Administrative Officer

LABORATORY ANIMAL MEDICINE DIVISION

Norman D. Wiltshire, LTC, VC, USA
Chief
Date of Appointment – 13 August 04

STAFF

Scientific:

(D) Angela Y. Ward, SGT, USA, NCOIC
(A) Chanda L. Sutton, SFC, USA, NCOIC
Monique E. Barnes, SGT, USA, Animal Care Specialist
(A) Adam F. Bajorek, PVT, USA, Animal Care Specialist
Chrishaundi N. Butler, SPC, USA, Animal Care Specialist
Angela M. Noble, SPC, USA, Animal Care Specialist
Cheryl C. Legg, PV2, USA, Animal Care Specialist
(D) Rodolfo E. Marenco, QA Technician
Steven P. McNair, Surgery Technician
Greeley A. Stones, Caretaker Supervisor
Michael B. Cannon, Animal Caretaker
(D) Jerome D. Escoe, Animal Caretaker
Rashaan O. Jackson, Animal Caretaker
James P. Pollock, Animal Caretaker

RESEARCH AND EDUCATION DIVISION

(A) Jo Lynne W. Raymond, LTC, VC, USA
Chief
Date of Appointment – 2 October 2006

STAFF

Medical:

Bridget S. Lewis, MAJ, VC, USA, Chief, Education Branch (PROFIS 9th AML)

Administrative:

Michael Sean Hahn, Administrator, Registry of Toxicologic Pathology for Animals

Scientific/Technical:

Henry John Jenkins, Electron Microscopist and Laboratory Technician
Scott R. Shaffer, Computer Technology Education Specialist

Residents:

Neel I. Aziz, CPT, VC, USA (2nd year)
Erica E. Carroll, MAJ, VC, USA (2nd year)
Taylor B. Chance, CPT, VC, USA (2nd year)
William E. Culp, MAJ, VC, USA (2nd year)
Michelle E. Thompson, CPT, VC, USA (2nd year)
William L. Wilkins, MAJ, VC, USA (2nd year)

CONSULTATION AND TRAINING DIVISION

Todd O. Johnson, LTC, VC, USA
Chief
Date of Appointment - 2 October 2006

STAFF

Medical:

Shelley P. Honnold, MAJ, VC, USA, Chief, Training Branch
Sarah L. Hale, MAJ, VC, USAR (DIMA)
Michelle L. Fleetwood, DVM, Chief, Consultation Branch
Thomas P. Lipscomb, DVM, Consultant Pathologist
F. Yvonne Schulman, DVM, Consultant Pathologist
(D) Greg A. Saturday, MAJ, VC, USA, Chief, Training Branch

Administrative:

(A) Rita D. Prioleau, Secretary
(D) Katherine M. Randall, Secretary

Residents:

(D) Louis M. Huzella, MAJ, VC, USA
(D) Mark A. Smith, MAJ, VC, USA
(D) Shannon M. Wallace, MAJ, VC, USA

Carl I. Shaia, MAJ, VC, USA (3rd year)
Ammon W. Brown, MAJ, VC, USA (3rd year)
James R Dwyer, MAJ, VC, USA (3rd year
(A) Christine L. Christensen, MAJ, VC, USA (1st year)
(A) Paul R. Facemire, MAJ, VC, USA, (1st year)
(A) Margaret A. Hanson, CPT, VC, USA (1st year)
(A) Eric D. Lombardini, CPT, VC, USA (1st year)

IMPACT:

- The most significant program in the department is the DOD Veterinary Pathology Residency; its impact on DOD is major. With only one exception, the Army veterinary pathologists now on active duty completed their postgraduate training at AFIP. Army veterinary pathologists are directly involved in critical DOD biomedical research efforts to protect the warfighter and are also trained in the detection and recognition of foreign animal diseases, many of which are potential biological weapons and of great importance to the nation's global war on terrorism. In the face of a worldwide shortage of veterinary pathologists, the Veterinary Pathology Residency Program at the AFIP continues to be a cost-effective and efficient source of trained pathologists for all DOD research, investigative, and diagnostic pathology needs. Currently, 13 officers are enrolled in the program.
- The operation of the laboratory animal facility at AFIP provides for important animal-model based research on human diseases for the AFIP and the Walter Reed Army Medical Center, Department of Clinical Investigation. The facility is fully accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC).
- The department provided critical diagnostic pathology services for military working animals and other federal animal programs. Members also provided consultation services to the National Marine Fisheries Service on several issues involving marine mammal deaths.
- The department continued to expand the Veterinary Systemic Pathology Online program with the assistance of a Department of Education grant and in collaboration with 4 universities. This resource contains case manuscripts with digital photomicrographs and virtual slide images of more than 675 disease entities, including most of the high consequence zoonotic and foreign animal diseases of importance in the Global War on Terrorism. All department online programs are freely available to military medical professionals. This resource enables the forward positioning of critical disease information without the need for deploying specialists.
- The department conducted a 25-week histopathology ("Wednesday") slide conference (WSC) with 134 participating institutions in 25 countries. This conference has an enormous impact on training programs and on hundreds of veterinary pathologists and residents worldwide. The WSC has been the signature program of this department for 54 years and is the only one of its kind in the world.
- The WHO Collaborating Center continued to publish the first updates in 25 years of the Histologic Classification of Tumors in Domestic Animals. These fascicles are an important reference used worldwide in diagnostic and research pathology.
- Annual pathology courses provided essential training for military medical research specialists and are key core components of the DOD Residency Program. These courses are also unique to the specialty of veterinary pathology.

CONSULTATION

The department provides essential diagnostic pathology services for the DOD military working dog program and other federal working animal programs, including the Navy Marine Mammal Program and those conducted by the Customs Service, Border Patrol and Secret Service. Veterinary pathology consultation is vital to maintaining the health and deployability of these important assets in the global war on terrorism. It is also important in maintaining disease surveillance measures in military communities. The importance of surveillance has substantially increased with the threat of bioterrorism. All of the known potential biological weapons, with the exception of smallpox, are zoonotic diseases. Members of the department also provide consultation and investigative services to the National Marine Fisheries Service on issues of military importance, including Navy sonar systems.

The department completed 2,144 consultation cases, which originated primarily from the DOD and other federal agencies. Over 70% of cases reported represent complete necropsies in which wet tissue was received. The majority of these cases are military working dogs and

marine mammals, which generate a continuous high demand for histopathological assessment of tissues. The department also performed 204 cytological case examinations, which included tissue aspirates and bone marrow impressions. Six cases received a quality diagnosis code of "4" representing a major disagreement with the contributor's diagnosis. Department staff members and residents conducted 689 necropsies. Histopathology was performed on almost all necropsy cases. The National Zoological Park (NZP) and the Maryland State Diagnostic Laboratory (MDX) necropsy cases are not included with AFIP consultation case totals, since they are assessed by AFIP residents with NZP or MDX staff pathologists at those institutions.

Cases	***Completed***
Military	1,108
Army (415)	
Navy (193)	
Air Force (500)	
Federal	33
VA (0)	
OFA (30)	
PHS (3)	
In House	65
Civilian	649
No Final Report (NFR)	289
Total	2,144

Necropsies Conducted:

Division of Laboratory Animal Medicine, AFIP	12
National Zoological Park (NZP)	131
Maryland State Diagnostic Lab (MDX)	136
National Institutes of Health	410
Other (marine mammals/military working dogs)	0
Total	689

Appointments outside the AFIP

1. Board of Directors, CL Davis DVM Foundation for the Advancement of Veterinary and Comparative Pathology, and Course Director, CL Davis Foundation Continuing Education Symposium at the 2006 American College of Veterinary Pathologists Annual Meeting, SL Hale.
2. Diagnostic Pathology Specialty Group Co-Chair, American College of Veterinary Pathologists, FY Schulman.
3. Nominations Committee, American College of Veterinary Pathologists, FY Schulman.
4. Lymphoid Leukemias and Lymphomas Subcommittee of the Oncology Committee, American College of Veterinary Pathologists, FY Schulman.
5. Credentialing Committee, American College of Veterinary Pathologists, TW Blanchard.
6. Examination Committee, American College of Veterinary Pathologists, DG Dunn and SL Hale.
7. Oncology Committee, American College of Veterinary Pathologists, TP Lipscomb.
8. Grant Proposal Reviewer, Florida's "Protect Wild Dolphins" Program, Harbor Branch Oceanographic Institute, TP Lipscomb.
9. Joint Technical Working Group, DDR&E, ND Wiltshire.
10. 9th Army Medical Laboratory, Aberdeen Proving Grounds, MD, GA Saturday and BS Lewis (PROFIS).
11. Joint Working Group on Unusual Marine Mammal Mortality Events, Departments of Commerce and Interior, ML Fleetwood (emeriti: DG Dunn, TP Lipscomb, FY Schulman).

EDUCATION

Presentations and Seminars:

In 2006, the Department of Veterinary Pathology gave 29 single presentations at various seminars, symposia, conferences, courses, and workshops. The Department also conducted

regular conferences and workshops on a daily, weekly, and quarterly basis.

Courses:
The Department sponsored or co-sponsored 3 courses attended by staff members and DOD Veterinary Pathology Program residents:

1. CL Davis Foundation Gross Morbid Anatomy of Domestic Animals Course
2. Descriptive Veterinary Pathology Course
3. Northeastern Veterinary Pathology Conference

Trainees:
1. 13 full-time DOD residents:
2. 15 visiting residents
3. 15 visiting students

Presentations
1. January 2006: Washington, DC, AFIP Weekly Professional Staff Conference, "Overview of marine mammal disease," ML Fleetwood.
2. February 2006: Bethesda, Md, Briefing for Dr. Larry Laughlin, Dean, USUHS, "Veterinary pathology in the DoD," DG Dunn.
3. February 2006: AFIP, Washington, DC, 691st Meeting of the Helminthological Society of Washington, "Elephant seals, otters, antelopes and worms," ML Fleetwood.
4. March 2006: Newark, Del, Pre-Veterinary Club, University of Delaware, "Military veterinary medicine," WE Culp.
5. April 2006: Garmish-Partenkirchen, Germany, International Military Veterinary Medical Symposium, "DoD veterinary pathology," DG Dunn.
6. May 2006: Falls Church, Va, Pathology for Non-Pathologists Course sponsored by The American Board of Toxicology and The Society of Toxicologic Pathology, "Basic principles," SL Hale.
7. May 2006: Nassau, Bahamas, 37th Annual Conference of the International Association of Aquatic Animal Medicine, Pathology Workshop, "Otostrongylus circumlitus in a Northern elephant seal," ML Fleetwood.
8. June 2006: Silver Spring, Md, 15th Annual Descriptive Veterinary Pathology Course, "Histologic case descriptions," ML Fleetwood, TW Blanchard, SL Hale, TO Johnson, DG Dunn.
9. June 2006: Arlington, Va, Briefing for Dr. Stephen L. Jones, PDASD (HA), "A profile of veterinary pathology in the DoD," DG Dunn.
10. July 2006: Honolulu, Hawaii, Briefing for Pacific Region Veterinary Command and 106th Medical Detachment Officer Professional Development, "A profile of veterinary pathology in the DoD," DG Dunn.
11. October 2006: Schoharie, NY, 12th Annual North Eastern Veterinary Pathology Conference, "*Coccidiodes immitis* in an Eastern indigo snake," TB Chance.
12. October 2006: Schoharie, NY, 12th Annual North Eastern Veterinary Pathology Conference, "Domoic acid toxicity in a California sea lion," ME Thompson.
13. October 2006: Schoharie, NY, 12th Annual North Eastern Veterinary Pathology Conference, "Classics and challenges of veterinary surgical pathology," FY Schulman.
14. October 2006: Schoharie, NY, 12th Annual North Eastern Veterinary Pathology Conference, "Herpesvirus infection of the penile mucosa in a dolphin," WE Culp.
15. October 2006: Schoharie, NY, 12th Annual North Eastern Veterinary Pathology Conference, "Canine Kaposi-like vascular tumor," WL Wilkins.
16. October 2006: Schoharie, NY, 12th Annual North Eastern Veterinary Pathology Conference, "Malignant pilomatricoma in an Airedale terrier," EE Carroll.
17. October 2006: Schoharie, NY, 12th Annual North Eastern Veterinary Pathology Conference, "Polyarteritis nodosa in a rhesus macaque," NI Aziz .
18. October 2006: National Zoological Park, Washington, DC, Resident Seminar, "Diseases of sea otters and polar bears," ML Fleetwood.
19. November 2006: Fredrick, Md, Briefing for Medical Research and Material Command Staff, "DoD veterinary pathology residency," DG Dunn.
20. December 2006: Tucson, Ariz, 57th Annual Meeting of the American College of Veterinary Pathologists, "An overview of the AFIP veterinary pathology residency," CI Shaia.
21. December 2006: Tucson, Ariz, 57th Annual Meeting of the American College of Veterinary

Pathologists, "2005 ACVP Exam, anatomic pathology microscopic slide review," DG Dunn.
22. December 2006: Tucson, Ariz, 57th Annual Meeting of the American College of Veterinary Pathologists, Training Coordinator's Meeting, "Online VetPath forum," SP Honnold.
23. December 2006: Tucson, Ariz, 57th Annual Meeting of the American College of Veterinary Pathologists, Poster presentation, "Multiple thyroid tumors in a cat," AW Brown.
24. December 2006: Tucson, Ariz, 57th Annual Meeting of the American College of Veterinary Pathologists, Poster Presentation, "Schizangiella serpentis infection in a Virginia ratsnake (Elaphe obsolete)," JR Dwyer.
25. December 2006: Tucson, Ariz, 57th Annual Meeting of the American College of Veterinary Pathologists, Diagnostic Pathology Specialty Group Session, "Subcutaneous tumors of the ventral abdomen with histologic features of adrenocortical tumors in two ferrets," MA Smith.

RESEARCH

Journal Articles

1. Whitten KA, Belote DA, McLeod CG. Intestinal choristoma in the subcutis of a dog. *Vet Pathol*. 2006;43:356-357
2. Whitten KA, Popielarczyk MM, Belote DA, McLeod CG, Mense MG. Ossifying fibroma in a Miniature Rex rabbit (Oryctolagus cuniculus). *Vet Pathol*. 2006;43:62-64
3. Baze WB, Steinbach TJ, Fleetwood ML, Blanchard TW, Barnhart KF, McArthur MJ, Karyomegaly and intranuclear inclusions in the renal tubules of sentinel ICR mice (Mus musculus). *J Comp Med*. 2006;56:435-438
4. Bonar CJ, Poynton SL, Schulman FY, Reitcheck RL, Garner MM. Hepatic Calyptospora sp. (Apicomplexa) infection in a wild-born, aquarium-held clutch of juvenile arapaima Arapaima gigas (Osteoglossidae). *DAO*. 2006;70:81-92
5. Carroll EE, Hammamieh R, Chakraborty N, Phillips AT, Miller S-AM, Jett M. Altered gene expression in asymptomatic SHIV-infected rhesus macaques (*Macacca mulatta*). *Virology Journal*. 2006;3:74
6. Goldstein T, Lowenstine LJ, Lipscomb TP, Mazat JA, Novak J, Scott JL, Gulland FM. Infection with a novel gammaherpesvirus in northern elephant seals (*Mirounga angustirostris*). *J Wildl Dis*. 2006;42(4):830-835.
7. Johnson T, Arnaud F, Dong F, Philbin N, Rice J, Asher L, Arrisueno M, Warndorf M, Gurney J, McGwin G, Kaplan L, Flournoy S, Apple F, Pearce L, Ahlers S, McCarron R, Freilich D. Bovine polymerized hemoglobin (hemoglobin-based oxygen carrier-201) resuscitation in three swine models of hemorrhagic shock with militarily relevant delayed evacuation: effects on histopathology and organ function. *Crit Care Med*. 2006;34(5):1464-1474

Abstracts

1. Andreason C, Sorden S, Roth J, Blanchard T, Metawally S, McKenna T. A pathology image database for foreign, emerging, and zoonotic animal diseases. Abstract presented at the 57th Annual Meeting of the American College of Veterinary Pathologists, Tucson, Ariz, December 2006.
2. Brown AW, Schulman FY, Johnson TO, Cloutier DA. Multiple thyroid tumors in a cat. (51) *Vet Pathol*. 2006; 43:818.
3. Dwyer JR, Burell B, Humber RA, McLeod C, Fleetwood ML, Johnson TO. Schizangiella serpentis infection in a Virginia ratsnake (*Elaphe obsoleta*). *Vet Pathol*. 2006;43:819.
4. Garner MM, Wynne J, Burns R, Nordhausen W, McCall S, Thompson ME. Morbillivirus infections in saki monkeys and pygmy marmosets at a zoological park. *Proceedings of the American Association of Zoo Veterinarians*, 2006.
5. Smith M, Schulman FY. Subcutaneous tumors of the ventral abdomen with histologic features of adrenocortical tumors in two ferrets. (43) *Vet Pathol*. 2006; 43:816.

Projects

Projects/Research supported by the department include:

1. The effects of BMP-2 and alendronate sodium on posterolateral fusion maturation in a rabbit model.
2. Post-West Nile virus outbreak red-tailed hawk necropsy series.
3. Determination of surface acoustic signatures from high velocity impacts in swine.
4. Indicators of human disease from Persian Gulf War service: a study of military working

dogs deployed in Operations Desert Shield/Storm.
5. Methods to protect against various infectious diseases at Biosafety Level 2 and 3.
6. Web-based distance learning in veterinary pathology.
7. Investigation of causes of marine mammal disease.
8. Feline pathology gross kodachrome study set.
9. Lafora body disease in a Fennec fox.
10. Ectopic adrenocortical tumors in ferrets.
11. Orthopedic research.
12. Marine mammal study set.
13. Correlation between morbilliviral titers, pathological findings and molecular diagnostics in cetaceans.
14. CNS lesions of domoic acid in marine mammals.
15. Feline C cell tumors and thyroid follicular cell tumors.
16. The effects of teriparatide and calcitonin on posterolateral fusion maturation in a rabbit model.
17. Pulmonary endometriosis in nonhuman primates.
18. DOD Veterinary Pathology Residency Training following BRAC .
19. Investigation of causes of mortality in bottlenose dolphins stranded along the South Carolina coast from 1993 to 2006.
20. Investigation of pathological findings in subsistence hunted Pacific walrus.
21. Investigation of genital herpesvirus infection in a Pacific white-sided dolphin.
22. The protective efficacy of anti-inflammatory agents and human/murine chimeric antibody to shiga toxin (Stx) type 2 in a ferret model of O157-mediated disease.
23. Lymphangiomatosis in the liver of a geriatric dog .
24. Angiomyxomatous neoplasms in the perineal region of baboons.
25. Ductal plate malformation in a nonhuman primate.
26. Malignant pilomatricoma in dogs.
27. Ovarian tumors in non-human primates.
28. Herpesvirus in Alaskan sea otters from the Exxon Valdez oil spill.

Collaborators

Military

1. DOD Military Working Dog Veterinary Service
2. Walter Reed Army Institute of Research
3. Walter Reed Army Medical Center
4. US Army Research Institute of Infectious Diseases
5. Uniformed Services University of the Health Sciences
6. Naval Medical Research Center

Civilian

1. National Zoological Park, Washington, DC
2. Maryland State Diagnostic Laboratory, Frederick, Md
3. National Marine Fisheries Service
4. US Fish and Wildlife Service
5. National Institutes of Health
6. Marine Mammal Center, Sausalito, Calif
7. CL Davis DVM Foundation for the Advancement of Veterinary and Comparative Pathology
8. Society of Toxicologic Pathology
9. University of Pennsylvania, School of Veterinary Medicine, New Bolton, Pa
10. New Jersey Marine Mammal Stranding Center, Brigantine, NJ
11. Iowa State University
12. Louisiana State University
13. Washington State University
14. University of Georgia
15. Harbor Branch Oceanographic Institute, Fort Pierce, Fla
16. Tufts University, School of Veterinary Medicine, Wildlife Clinic
17. Southwest National Primate Research Center
18. National Ocean Service

PROFESSIONAL ACTIVITIES

Official Trips

1. January 2006: Purdue University School of Veterinary Medicine, SP Honnold (USAREC).
2. March 2006: Plum Island Animal Disease Center, NY, Foreign Animal Disease Diagnosticians Course, WL Wilkins (AFIP).
3. March 2006: Iditarod Trail Dog Sled Race, Trail veterinarian and pathologist, Alaska, ML Fleetwod (MLF personal funds).
4. March 2006: CL Davis Foundation Gross Morbid Anatomy of Disease of Animals Course, Bethesda, MD, SP Honnold, MA Smith, LM Huzella, SM Wallace, WE Culp, TB Chance, ME Thompson, WL Wilkins, NI Aziz, EE Carroll (no cost).
5. April 2006: Veterinary Laboratory Europe, Landstuhl, Germany, GA Saturday (VLE).
6. April 2006: International Military Veterinary Medical Symposium, Garmisch-Partenkirchen, DG Dunn (OTSG).
7. May 2006: 37th Annual Conference of the International Association of Aquatic Animal Medicine, Nassau, Bahamas, ML Fleetwood (ARP).
8. June 2006: Plum Island Animal Disease Center, NY, Foreign Animal Disease Diagnosticians Course, WE Culp (AFIP).
9. July 2006: US Army War College DDE Class of 2006 Second Resident Course, Carlisle Barracks, PA, TW Blanchard (AFIP).
10. July 2006: Pacific Region Veterinary Command and 106th Medical Detachment Officer Professional Development, in conjunction with the annual meeting of the American Veterinary Medical Association, Honolulu, HI, DG Dunn (ARP).
11. September 2006: European Society of Veterinary Pathology Annual Meeting, Edinburgh, Scotland, SM Hahn, BS Lewis, SR Shaffer (ARP).
12. September 2006: ACVP Board Examination, Ames, Iowa, LM Huzella, MA Smith, SP Honnold, SM Wallace (AFIP).
13. September 2006: ACVP Board Examination, Ames, Iowa, DG Dunn, SL Hale (ACVP).
14. October 2006: 12th Annual Northeastern Veterinary Pathology Conference, Schoharie, NY, BS Lewis, WL Wilkins, ME Thompson, WE Culp, EE Carroll, NI Aziz, TB Chance (AFIP).
15. October 2006: 12th Annual Northeastern Veterinary Pathology Conference, Schoharie, NY, MS Hahn, FY Schulman (ARP).
16. November 2006: Association of Primate Veterinarians and the American Association of Laboratory Animal Science Conference, Salt Lake City, Utah, ND Wiltshire (AFIP).
17. December 2006: 57th Annual Meeting of the American College of Veterinary Pathologists, Tucson, Ariz, BS Lewis, CI Shaia, SP Honnold, DG Dunn, TW Blanchard, DA Belote TO Johnson, JW Raymond, AW Brown, JR Dwyer (AFIP).
18. December 2006: 57th Annual Meeting of the American College of Veterinary Pathologists, Tucson, Ariz, MS Hahn, SR Shaffer, TP Lipscomb, FY Schulman (ARP).
19. December 2006: Purdue University, Ind, VC recruitment, PR Facemire (USAREC).
20. December 2006: University of Pennsylvania, Philadelphia, Pa, VC recruitment, ED Lombardini (USAREC).

Manuscripts Reviewed

1. *Veterinary Pathology*, *Journal of Wildlife Diseases and Marine Mammal Scienc*e, Lipscomb TP.
2. *Journal of the American Animal Hospital Association*, Schulman FY.
3. *Veterinary Pathology*, Schulman FY.
4. *Journal of the American Veterinary Medical Association*, Schulman FY.

Editorial Boards

1. Editor, WHO International Histological Classification of Tumors of Domestic Animals, Schulman FY.
2. *Journal of the American Animal Hospital Association,* Schulman FY.

Florabel G. Mullick, MD, ScD (Hon), FCAP, SES
Chair
Date of Appointment — 27 June 1996

DEPARTMENT OF ENVIRONMENTAL AND INFECTIOUS DISEASE SCIENCES

The Department of Environmental and Infectious Disease Sciences, established in 2004 by merging the Department of Environmental and Toxicologic Pathology with the Department of Infectious and Parasitic Diseases Pathology, brought together experts in infectious and tropical diseases, microbiology, molecular pathobiology, AIDS and emerging infections, environmental pathology, environmental toxicology, and biophysical toxicology. In 2006, the department added the Division of Chemical Microscopy. The Department conducts consultation, education, and research in global diseases; studies environmental factors causing negative health effects and organisms that cause a specific illness; and studies threats and diseases that affect our deployed soldiers and their health upon return.

ORGANIZATION

- Office of the Chair
- Division of Environmental Pathology, Michael R. Lewin-Smith, MD, Chief
- Division of Environmental Toxicology, Victor F. Kalasinsky, PhD, Chief
- Division of Biophysical Toxicology, Jose A. Centeno, PhD, Chief
- Division of Chemical Microscopy, Hazel Marie Jenkins, HT, ASCP, Chief
- Division of Infectious and Tropical Diseases Pathology, Peter L. McEvoy, COL, MC, USA, Chief
- Division of Microbiology, Robert Crawford, PhD, Chief
- Division of Molecular Pathobiology, Shyh-Ching Lo, MD, PhD, Chief
- Division of AIDS Pathology and Emerging Infectious Disease, Ann M. Nelson, MD, Chief

STAFF – OFFICE OF THE CHAIR

Medical

Florabel G. Mullick, MD, ScD, FCAP, Chair
Douglas J. Wear, MD, Associate Chair for Research and Education
(D) Linda Murakata, Lt Col, USAF, MC

Administrative

Ridgely L. Rabold, AAS, Department Administrator, PGI Program Manager
Kim Knight, Administrative Officer
Ana Erica Revelo, Administrative Assistant

Individual division reports cover achievements in consultation, education and research.

The creation of the INTOX Data Center consolidates all our military-related databases, facilitating the follow-up of war-related diseases in military personnel.

In 2006, Dr. Mullick assisted in the consultation, education and research missions of the department by signing 462 cases, publishing 6 peer reviewed articles, and presenting 5 lectures.

For further activities please see the section under Principal Deputy Director.

DIVISION OF ENVIRONMENTAL PATHOLOGY

Michael R. Lewin-Smith, MD
Chief
Date of Appointment – 1 November 2001

STAFF

Medical:

Michael R. Lewin-Smith, MD, Chief

Scientific & Administrative:

Albin L. Moroz, MS, Analyst/Programmer
Tain-Lin Huang, MS, ME, Programmer, level 2
(D) Mary L. McDaniel, Medical Research Technician
(A) Lolita L. Johnson, Medical Research Technician, level 2

IMPACT

- The Division of Environmental Pathology conducts consultation, education, and research in environmental toxicology, environmental pathology, and drug-induced pathology. It studies ways to develop, and apply toxicological techniques for analyzing human and animal tissue, to determine causes of injury and disease. Pathology consultations for the identification of unknown materials in tissue are performed by the Division of Environmental Pathology, working in close collaboration with the Division of Environmental Toxicology.
- The division provides medical/pathology support to the Divisions of Environmental Toxicology, Chemical Microscopy, and Biophysical Toxicology, within the Department of Environmental and Infectious Disease Sciences, and provides intramural consultative support to the other departments of the AFIP.
- The overwhelming majority of the division's work in 2006 involved military-related consultation, education, and research. Consultative activity involved support of military pathologists deployed overseas, and support of military pathologists and clinicians in the United States. The bulk of the remaining consultations were performed for the Department of Veterans Affairs, for patients whose specimens have been submitted for inclusion in the AFIP's military-related registries which are maintained by the Division. Consultation reports were issued for these patients when requested, in collaboration with the relevant expert subspecialty departments of the AFIP.
- The division maintains several Registries of anatomic pathology material from military and militarily-related cohorts including former Prisoners of War, Vietnam War/Agent Orange veterans, 1990-1991 Kuwait/Persian Gulf War veterans, and ionizing radiation veterans. In 2003, new registries for military personnel deployed to Iraq, and Afghanistan were initiated and continued to grow during 2006. In 2004 an AFIP Registry was developed in collaboration with the Division of Tropical and Infectious Disease Pathology for Leishmaniasis, which also added cases in 2006.
- The Division also supports the Veterans Administration Claims process. Division staff processed 1 Veterans Administration Claims case in 2006, relating to Agent Orange.
- In 2006, the Division staff (M Lewin-Smith) presented a video teleconference entitled "Medical "Foreign Bodies": A review of histologic, scanning electron microscopic and spectroscopic findings", that was accessed by 40 sites, including Military Medical Treatment Facilities and Veterans Administration Medical Centers. Dr. Lewin-Smith also presented lectures entitled "Characterization of endogenous materials in histopathology specimens" to the Departments of Pathology at Georgetown University Medical Center and The George Washington University Medical Center, both in Washington, DC. Dr. Lewin-Smith also presented a lecture entitled "Laminaria; seaweed in pathology specimens" at the AFIP Weekly Professional Staff Conference.

- Throughout 2006, Division staff (MR Lewin-Smith) occupied the position of Chair, AFIP Research Committee, and evaluated all new AFIP research protocols submitted, worked-up research-related policy issues, and provided assistance for several research-related enquiries including the AFIP input for the Department of Defense response to a US Department of Health and Human Services Request for Information.
- The Division staff had 2 papers published and 1 scientific abstract published in 2006.
- Division Staff, (MR Lewin-Smith), presented a poster at the International Academy of Pathology centennial meeting in Montréal, Canada in 2006.
- Division staff, (AL Moroz) maintained the Division's computerized databases, and also provided computer programming and analysis supporting activities outside of the Division. He continued to consolidate other Registries and Special Studies within the Department of Environmental & Infectious Disease Sciences into the International Toxicology Data Center. 19,000 reports are indexed and instantly retrievable.

CONSULTATION

DIAGNOSTIC CONSULTATION

Cases	*Completed*
Military	126
Army (105)	
Navy (19)	
Air Force (2)	
Federal	3,053
VA (3,053)	
Civilian	17
Interdepartmental	91
Total	3,287

Division staff (MR Lewin-Smith) also co-signed 161 cases with the Division of Chemical Microscopy, (114 Army, 34 Air Force, 13 VA), in 2006.

Division Staff (MR Lewin-Smith) also co-signed 12 cases for the Division of Environmental Toxicology (5 Army, 5 Navy, 2 Civilian), in 2006.

Division Staff, (MR Lewin-Smith) reviewed 226 quality assurance cases for the Divisions of Environmental Pathology, Environmental Toxicology, and Chemical Microscopy in 2006.

- In addition to division staff, (Dr. Lewin-Smith), Drs. Mullick, Murakata, and Kalasinsky signed out cases for the Division of Environmental Pathology in 2006.
- The division maintains the Registry for Former Prisoners of War (POWs), which contains histopathologic specimens dating back to 1945. The Registry was established in 1980 in a Veterans Administration (VA) circular. Since then, approximately 30,000 accessions from 15,000 former POWs have been received at the AFIP. During 2006, 686 new POW accessions were received including those with no report required. The Division received 195 fewer POW accessions in 2006 than in 2005. This is thought to be mainly a reflection of the decline in numbers of surviving former POWs from World War II.
- The Division also maintains the Kuwait/Persian Gulf Registry for pathology specimens from veterans of the 1990-1991 Persian Gulf War. This Registry is supported by funding from the Department of Defense, and contains pathologic material contributed by Military Medical Treatment Facilities and VA Medical Centers. During 2006, 1,609 new Kuwait/Persian Gulf Registry accessions were received including those with no report required. The Division received 69 fewer Kuwait/Persian Gulf accessions in 2006 than in 2005.
- A special study conducted in the 1980s for Vietnam War Veterans formed the basis for the AFIP Registry for Agent Orange, which is maintained by the Division. Additional cases have been received since then. Autopsy contributions, received mainly from VA Medical Centers, are periodically received for dioxin evaluation, which is performed as part of a research protocol by the Division of Environmental Toxicology. In 2006, 353 new Agent Orange Registry accessions were received including those with no report required. The Division received 46 more Agent Orange Registry cases in 2006 than 2005.
- For the 3 registries listed above, the Division received a combined total of 2,648 new accessions in 2006. This is a decrease of 218 accessions compared to 2005. In addition, the Divi-

sion maintains 3 registries related to the Global War on Terrorism.

- The Leishmaniasis Registry is a disease specific registry. It was established in collaboration with the Division of Tropical and Infectious Disease Pathology to monitor leishmaniasis cases from Southwest Asia from Operation Enduring Freedom (OEF), and Operation Iraqi Freedom (OIF). It includes patients from Afghanistan, Iraq and countries in the Arabian Peninsula.
- The Afghanistan Service Registry is a geographically based registry for patients who were in the OEF theater of operations.
- The Operation Iraqi Freedom Registry is a geographically based registry for patients who were in the OIF theater of operations. The Division received 616 new accessions for this registry in 2006, an increase of 353 accessions compared to 2005.
- There were no new accessions for the Ionizing Radiation /Radiation Biology Registry in 2006. Since 2002, the last radiation biology pathologist has not been replaced.
- The Division processed 1 VA claims case in 2006.
- The Department of Environmental & Infectious Disease Sciences has developed the International INTOX database, which contained several thousand cases, and was re-organized in 2001. The INTOX database was re-named as the INTOX Data Center and now is an umbrella for several databases, which have been separated to more easily identify related cases. Division staff have been actively involved with the development of the new data center, and in redesigning the computerized records for the Tissue Reaction to Drugs (TRD) Registry. The registries for Agent Orange, Former Prisoners of War, Kuwait/Persian Gulf and Radiation Pathology are databases in the INTOX Data Center. Division staff have also worked on the material for the Breast Explant Registry, Depleted Uranium Registry and Chronic Arseniasis Registry. A new database for Environmental Agents has been created for cases previously included in the TRD registry but which are not recognized as conventional drugs, diagnostic or therapeutic agents or alternative therapies. The reorganization continued in 2006 to improve the utility of the data, for future research, and for collaborative work particularly with military and other government agencies.

EDUCATION

Course

August 2006, Washington, DC, AFIP video-teleconference: "Medical 'Foreign Bodies': a review of histologic, scanning electron microscopic and spectroscopic findings," MR Lewin-Smith.

Department Staff (MR Lewin-Smith) earned 62 hours of AMA PRA category 1/ACCME credit for continuing medical education in 2006.

Faculty Appointments

1. The George Washington University, Assistant Clinical Professor of Pathology, Department of Pathology, MR Lewin-Smith.
2. Georgetown University, Adjunct Assistant Professor, Department of Pathology, MR Lewin-Smith.

Presentations and Seminars

1. March 2006: Washington, DC, Department of Pathology, Georgetown University Medical Center, "Characterization of endogenous materials in histopathology specimens," MR Lewin-Smith.
2. April 2006: Washington, DC, AFIP Weekly Professional Staff Conference, "Laminaria; seaweed in pathology specimens," MR Lewin-Smith.
3. May 2006: Washington, DC, Department of Pathology, George Washington University Medical Center, "Characterization of endogenous materials in histopathology specimens," MR Lewin-Smith.
4. September 2006: Montréal, Canada. International Academy of Pathology Centennial Meeting, "Birefringence of helminths pathogenic to humans" (poster presentation), MR Lewin-Smith.

RESEARCH

Journal Articles

1. Lewin-Smith MR, Kalasinsky VF, Mullick FG. Correspondence Re: "C.Guo, K.E. McMartin, The cytotoxicity of oxalate, metabolite of ethylene glycol, is due to calcium oxalate monohydrate formation, *Toxicology* 208 (3) (2005) 347-255" (Letter to the Editor). *Toxicology*. 2006;222:160-161.

2. Murakata LA, Lewin-Smith MR, Specht CS, Kalasinsky VF, McEvoy PL, Vinh TN, Rabin LN, Mullick FG. Characterization of acrylic polyamide plastic embolization particles in vitro and in human tissue sections by light microscopy, infrared microspectroscopy and scanning electron microscopy with energy dispersive X-ray analysis. *Mod Pathol*. 2006;19:922-930.

Abstract

Lewin-Smith MR, Neafie R, Mullick FG. Birefringence of helminths pathogenic to humans. *Mod Patholog*y. 2006;19(supplement 3):133.

Projects

The Division maintained the following AFIP approved research projects in 2006.

MR Lewin-Smith, Principal Investigator:

1. A histopathologic study of hematologic specimens from Persian Gulf War military veterans.
2. The timing of Hepatitis C seroconversion in a cohort of US Military Gulf War veterans (GWVs).
3. A histopathologic study of liver specimens from Persian Gulf War Military Veterans, (closed in 2006).
4. Pathology of the lung in a cohort of former Prisoners of War.
5. A review of gynecologic histopathology in a group of Gulf War veterans.
6. Update of skin pathology in Gulf War Veterans.
7. Birefringence of helminths in hematoxylin & eosin-stained human tissue sections.

CS Specht (Department of Neuropathology & Ophthalmic Pathology), Principal Investigator:

A review of the neuromuscular pathology of Gulf War veterans.

Other Projects

Identification of micro-embolization beads in pathology specimens (LA Murakata, CS Specht, MR Lewin-Smith et al.).

Collaborators

Military:

1. KC Holtzmuller, COL (ret.), USA, MC, Hepatic disease in US Military Gulf War Veterans (GWVs).
2. KL Maggio, LTC, USA, MC, WRAMC, Identification of material from wound sites in US military personnel.

Civilian:

C Watkins, S Stofko, Prisoner of War Information System (POWIS): Pathology of the lung in former Prisoners of War.

Interdepartmental:

1. EJ Rushing, COL, USA, MC: Neuromuscular pathology of Gulf War Veterans.
2. L Rabin, MD: Hepatic disease in US Military Gulf War veterans.

PROFESSIONAL ACTIVITIES

Official Trip:

September 2006: Montréal Canada, 2006 International Academy of Pathology Meeting, (Centennial Meeting) “Birefringence of helminths pathogenic to humans,” MR Lewin-Smith.

Offices/Committee Memberships in National or International Societies.

Intramural:

1. Research committee, AFIP, chair, MR Lewin-Smith.
2. Ash Library committee, AFIP, member, MR Lewin-Smith.

New Missions and/or Missions Dropped:

A new endeavor started in 2006 to accession archived histopathological material from overseas military medical treatment facility(s) for inclusion in the AFIP Operation Iraqi Freedom Registry.

DIVISION OF ENVIRONMENTAL TOXICOLOGY

Victor F. Kalasinsky, PhD
Chief
Date of Appointment – 25 September 1989

STAFF

Scientific

Victor F. Kalasinsky, PhD, Chief
Natalya Merezhinskaya, PhD, Research Biologist
(D) Noel D. Gravina, HMC, USN, NCOIC
Karen Pizzolato, MS, Laboratory Manager
(A) Michelle L. Amerson, BS, Laboratory Technician
(A,D) Chloe C. Bauer, BS, Laboratory Technician
(A) Mild T. Esmino, HM2, USN, Laboratory Technician
(A) Stacy L. Strausborger, BS, Laboratory Technician
(D) Esta Y. Tamanaha, BS, Laboratory Technician
Albin L. Moroz, MS, Computer Program Analyst
Jesse Tristan, BS, Computer Applications Specialist

Administrative

Kim M. Knight, Administrative Officer

IMPACT

- White powders suspected of being biological agents and other unknowns were identified using infrared and Raman spectroscopy and scanning electron microscopy with energy-dispersive x-ray analysis.
- Supported USACHPPM, WRAMC, and the OAFME by analyzing specimens from patients serving in Iraq.
- The AFIP-DoD-GEIS Directory of Public Health Laboratory Services was available online. Monthly newsletters were prepared highlighting important news related to emerging infections, and a "flat file" of pertinent data on CD was prepared for distribution.
- Worked with USACHPPM to add military environmental laboratory capabilities to the online database in a format compatible with the Environmental Protection Agency.
- Assisted military crime investigators by identifying materials found in specimens.
- Work continued on discriminating among different genera of microorganisms using various spectroscopic methods, including microspectroscopy and chemical imaging, in collaboration with the Division of Microbiology and Aberdeen Proving Ground.
- Optimized the immunohistological identification of West Nile virus in cultured cells.
- Prepared AMPD stain for immunohistological analysis.

CONSULTATION

By using gas chromatography, mass spectrometry, liquid chromatography, Fourier transform infrared and Raman spectrometry, and scanning electron microscopy with energy-dispersive x-ray analysis, it was possible to identify or characterize unknown chemical substances in 35 cases. These included pesticides, plastics, therapeutic drugs, and cases of dioxin analysis in patients thought to have been exposed to Agent Orange in Vietnam. Other cases included serologic tests on Gulf War veterans.

Cases

Military	714
Army (560)	
Navy (12)	
Air Force (142)	
Federal (VA)	113
Civilian	9
Interdepartmental	27
Total	863

EDUCATION

Trainees:

Three high school students received training in our division during summer 2005.

Scientific Appointments

Guest Researcher, National Institute of Diabetes, Digestive, and Kidney Diseases, NIH, VF Kalasinsky.

Continuing Education

1. January 2006: Washington, DC, Training in applications of confocal microscopy. N Merezhinskaya.
2. March 2006: Beltsville, Md, Animal Welfare Information Center (AWIC) workshop, US Department of Agriculture. VF Kalasinsky.
3. October 2006: Silver Spring, Md, WRAIR, "Introductory principles of radiation protection (IPRP)," ML Amerson, MT Esmino, SL Strausborger.
4. November 2006: Greenbelt, Md, "Waters/Millipore workshop on high performance liquid chromatography (HPLC) and HPLC-mass spectrometry," KM Pizzolato, ML Amerson, SL Strausborger.

Presentations

1. March 2006: Atlanta, Ga, International Conference on Emerging Infectious Diseases, "DoD Directory of Public Health Laboratory Services Internet-Accessible Database," KM Pizzolato, EY Tamanaha.
2. March 2006: Reno, Nev, Meeting of the Society of Armed Forces Medical Laboratory Scientists, "Internet-accessible database of DoD laboratory services," KM Pizzolato, EY Tamanaha.
3. April 2006: Washington, DC, AFIP Weekly Professional Staff Conference, "Internet accessible DoD directory of Public Health Laboratory Services," VF Kalasinsky.

RESEARCH

Publications

Journal Articles

1. Lewin-Smith MR, Kalasinsky VF, Mullick FG. Correspondence Re: "C. Guo, K. E. McMartin, The cytotoxicity of oxalate, metabolite of ethylene glycol, is due to calcium oxalate monohydrate formation, Toxicology 208(3) 2005 347-355." *Toxicology*. 2006;222(1-2):160-161.
2. Murakata LA, Lewin-Smith MR, Specht CS, Kalasinsky VF, McEvoy PL, Vinh TN, Rabin LN, Mullick FG. Characterization of acrylic polyamide plastic embolization particles in vitro and in human tissue sections by light microscopy, infrared microspectroscopy, and scanning electron microscopy with energy dispersive X-ray analysis. *Mod Pathol*. 2006;19:922-930.
3. Lee E, Kidder LH, Kalasinsky VF, Shoppelrei JW, Lewis EN. Forensic visualization of foreign matter in human tissue by near-infrared spectral imaging: Methodology and data mining strategies. *Cytometry A*. 2006;69:888-896.
4. Merezhinskaya N, Ogunwuyi SA, Fishbein WN. Expression of monocarboxylate transporter 4 in human platelets, leukocytes, and tissues assessed by antibodies raised against terminal versus pre-terminal peptides. *Mol Genet Metab*. 2006;87:152-161.
5. Chiry O, Pellerin L, Monnet-Tshudi F, Fishbein WN, Merezhinskaya N, Magistretti PJ,

Clarke S. Expression of the monocarboxylate transporter MCT1 in the adult human brain cortex. *Brain Res*. 2006;1070:65-70.

Abstracts

1. Kalasinsky VF, Tristan JO, Pizzolato KM, Tamanaha EY, Gaydos JC, MacIntosh VH, Malone JL, Rumm PD, Mullick FG. DoD Directory of Public Health Laboratory Services Internet-Accessible Database. Book of Abstracts of the International Conference on Emerging Infectious Diseases, Atlanta, Ga, March 19-22, 2006.
2. Kalasinsky VF, Tristan JO, Pizzolato KM, Tamanaha EY, Gaydos JC, MacIntosh VH, Malone JL, Rumm PD, Mullick FG. Internet-Accessible Database of DoD Laboratory Services. Book of Abstracts of the Society of Armed Forces Medical Laboratory Scientists, Reno, Nev, March 26-30, 2006.

Projects

1. Military working dogs deployed to Southwest Asia as sentinels for human environmental exposure during the Persian Gulf War.
2. Prospective clinical and laboratory evaluation of patients with silicone breast implants: determination of silicon baseline levels and molecular microanalysis of pathological specimens associated with fibrous capsules.
3. The timing of hepatitis C seroconversion in a cohort of Gulf War military veterans.
4. A histopathologic study of biopsy specimens from Persian Gulf War military veterans.
5. A review of the neuromuscular pathology of Gulf War veterans.
6. A histopathologic study of Gulf War veterans potentially exposed in Khamisiyah.
7. Histopathologic review and chemical analysis of autopsy material from the Agent Orange Registry.
8. Monoclonal antibodies as immunohistochemical aid in the diagnosis of amniotic fluid embolism and West Nile fever.
9. The use of confocal microscopy in the characterization of monoclonal antibodies.

In Gulf War-related studies, the division is participating in the DoD's Comprehensive Clinical Evaluation Program (CCEP). AFIP is charged with the long-term storage of blood and serum specimens collected from Gulf War veterans and their families who are reporting symptoms that might be related to service in the Gulf region. A database for diagnosis of surgical biopsies is also being maintained for Gulf War veterans reporting to VA or military hospitals.

Collaborators

Military/Federal

1. IW Levin, NIH: Vibrational imaging of tissue samples.
2. KL Maggio, WRAMC: Blast injuries in military personnel.
3. RL Erickson, JC Gaydos, VH MacIntosh, Global Emerging Infections System, Silver Spring, MD: DoD Directory of Public Health Laboratory Services.
4. AF Weir, US Army Center for Health Promotion and Preventive Medicine, Aberdeen, MD: DoD Environmental Laboratory Compendium.
5. JM Heller, US Army Center for Health Promotion and Preventive Medicine, Aberdeen, Md: Deployment surveillance of active duty US troops.
6. R Crawford, Division of Microbiology, AFIP: Infrared and Raman spectroscopic characterization of microorganisms.

Civilian

1. O Chiry, Max Planck Institute for Brain Research, Frankfurt, Germany: Preparation of monoclonal antibodies against monocarboxylate transporters.
2. J Pouysegur, Institute of Signaling, Developmental Biology and Cancer Research, Nice, France: Preparation of monoclonal antibodies against monocarboxylate transporters.

PROFESSIONAL ACTIVITIES

Official Trips

1. March 2006: International Conference on Emerging Infectious Diseases, Atlanta, Ga, VF Kalasinsky, KM Pizzolato, EY Tamanaha.
2. March 2006: Joint Environmental Surveillance Work Group, Hampton, Va, VF Kalasinsky.
3. March 2006: Society of Armed Forces Medical Laboratory Scientists Conference, Reno, Nev, KM Pizzolato, EY Tamanaha (ARP).

4. August 2006: Force Health Protection Conference, Albuquerque, NM, VF Kalasinsky.
5. November 2006: Joint Environmental Surveillance Work Group, San Antonio, Tex, VF Kalasinsky.

Manuscripts Reviewed

VF Kalasinsky:

1. *Applied Spectroscopy* (4)
2. *Journal of Physical Chemistry* (3)
3. *Spectrochimica Acta* (3)
4. *Vibrational Spectroscopy* (1)

N. Merezhinskaya:

Molecular Pharmaceutics (2)

Editorial Boards

Vibrational Spectroscopy, VF Kalasinsky

Committees:

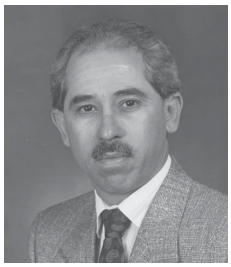
Intramural

1. Safety Committee, AFIP – VF Kalasinsky.
2. Biosafety Committee, AFIP – VF Kalasinsky.
3. Institutional Animal Care and Use Committee (IACUC), AFIP – VF Kalasinsky.

Extramural

1. Laboratory Policy Coordinating Group (LPCG) – VF Kalasinsky.
2. Joint Environmental Surveillance Work Group, Tri-service Laboratory Sub-Group (JESWG/TSLSG) – VF Kalasinsky.

DIVISION OF BIOPHYSICAL TOXICOLOGY



José A. Centeno, PhD
Chief
Date of Appointment: October 2001

STAFF

Scientific

José A. Centeno, PhD, Chief
(D) Todor I. Todorov, PhD, Research Chemist and Laboratory Manager
Simina Lal, BS, MS, Environmental Chemistry Technician, ARP
Hanna Xu, BS, MS, Environmental Chemistry Technician, ARP
(A) Gijsbert van der Voet, PhD, Fellow in Toxicology (ARP)
(A) Andrey Sarafanov, PhD, Postdoctoral Fellow (ARP)
(A) Ling Zhang, PhD, Research Chemist
(A,D) Chin-Hsiao Tseng, MD, PhD, Visiting Scientist

IMPACT:

The Division of Biophysical Toxicology conducts consultation, education, and research in environmental and biophysical toxicology, environmental health, and bio-inorganic analysis of toxic metals, and foreign materials. The division is tasked with the development of chemical and biophysical techniques for the characterization of inorganic and foreign materials in human and other animal tissues, with particular emphasis on elemental composition, chemical and toxicological speciation of toxic metals. This year, the division accomplished the following tasks and objectives:

1. Concerning the division's research, consultation and analytical toxicology programs on Depleted Uranium (DU):
   - The division continues to provide analytical and archival support as part of the AFIP Depleted Uranium (DU) Registry. This DU Registry consists of archival materials, the development of central analytical laboratory core facility dedicated to the analysis of total and isotopic uranium ratio in biological tissues and fluids, and a biological surveillance program to monitor potential cases of DU exposure within the 3 Services. The DU Registry was established in collaboration with the DU Program at the Baltimore VAMC, and it provides archival and chemical analysis for all the services of the US Armed Forces including Army, Navy, Air Forces and US Marines. In 2006, the DU Registry consisted of over 2,545 archived samples from the DU Biological Surveillance Program. The Registry is maintained by funds obtained from the VA Baltimore DU Program and USCHPPM.
   - This year the division provided support and information on different topics related to depleted uranium, including measurements techniques, environmental monitoring, soldier biomonitoring, epidemiology, and histopathologic evaluations. The division's laboratory on DU analysis provided analytical support to USCHPPM, WRAMC-Health Physics and Preventive Medicine Programs, and to the DoD Force Health Protection and Readiness Programs (Health Affairs).
2. In close collaboration with the DoD Force Health Protection and Readiness Programs (Health Affairs), division staff (Dr. Jose A. Centeno) have been actively involved as members of the DHSD Biomonitoring Working Group. Through participation on these committees, the division staff has contributed to the development of guidelines for Biomonitoring of Nerve Agent Exposures and Medical Management of Metal Fragments. This year, the division established the AFIP Registry on Chemical Warfare Agents

(Registry Code RG06).

3. In collaboration with the DoD Force Health Protection and Readiness Programs (Health Affairs), the division has developed the AFIP Analysis of Metal Fragments Special Study (AMFS) in support of the recent DASD Policy on Analysis of Metal Fragments Removed from Service Members. The AFIP AMFS has received 13 cases as of December 2006 for chemical analysis and composition of metal fragments and other related materials.
4. The division provided consultation and analytical toxicological support to the Office of the Armed Forces Medical Examiner, US Center for Health Promotion and Preventive Medicine, DoD Force Health Protection and Readiness Programs (Health Affairs), Walter Reed Army Medical Center, Navy Bureau of Medicine and Surgery, Brooke Army Medical Center, Navy Criminal Investigative Services, Navy Health Research Center, Depleted Uranium Program at the Baltimore VAMC, and Army Criminal Investigative Division, in several cases concerning potential exposure to environmental agents and toxic trace metals including mercury, arsenic, lead, and depleted uranium.
5. Division staff (JA Centeno) served as the Army expert witness on a recent court case at the request of the District Attorney for the County of San Diego, Calif.
6. The division has successfully established the Center for Analysis and Quality Assurance for the study of remedies and complementary medicine preparations of military relevant (MIL-CAM). Division staff were able to secure grant funds totaling $80,000 for the continuing development of this Center. This Center is aimed at establishing laboratory procedures and analytical toxicological assays to elucidate the chemical properties and health effects of remedies and supplements which may be used by Servicemembers.
7. The division has developed and maintains the ONLY DoD Registry on Military Medical Geology, with collaboration from DoD, national and international organizations including the Navy Bureau for Medicine and Surgery, the Army Corps of Engineers – Environmental Lab, the US Geological Survey, UNESCO and the International Union of Geological Sciences. This Registry is aimed at the study and characterization of geological (minerals, trace elements) and environmental factors and their distribution on the development of health problems. Health problems associated with exposure to lead, mercury, fluoride, cadmium, arsenic and other toxic metals are been studied. The division is collaborating with the Navy Bureau of Surgery and Medicine to access the health risks associated with exposure to airborne dust, particularly dust from OIF and other regions. The division has also developed a teaching and training unit on Medical Geology which is based on a 3-day course titled “Metals, Health and the Environment.”
8. The Division of Biophysical Toxicology maintains the Breast Explant Registry and conducts a research program on the archiving, consultation, and biophysical studies of silicone breast explants and bioimplantable materials database. This Registry has an extensive collection of published literature, CDs, and a list of patents on materials used in the manufacture of silicone breast implants and other biomedical devices.
9. The division has developed and maintains the International Tissue and Tumor Repository for Chronic Arseniasis, with the partial support of 2 other US Federal agencies (US Environmental Protection Agency and National Cancer Institute). This Repository continued to serve as a centralized facility for collecting, archiving, and studying tissue specimens from populations chronically exposed to arsenic.
10. In collaboration with other federal agencies including the US Geological Survey and the US Environmental Agency, division staff continue to collaborate with scientists from the Ukraine in studying potential health effects associated with environmental exposure to mercury in the city of Gorlovka.

CONSULTATION

The Division of Biophysical Toxicology is charged with the task of providing analytical toxicology support for the study of toxic metals and the identification and quantification of environmental and chemical agents in tissues and other biological specimens. In 2006, the division was involved on over 340 cases requiring depleted uranium analysis. In addition, division staff worked closely with the Office of the Armed Forces Medical Examiner and the Navy and Army Criminal Investigative Criminal Divisions in several suspected cases of toxic metal poisoning.

Cases	*Completed*
Military	25
Army (4)	
Navy (14)	
Air Force (7)	
Federal	346
VAH (346)	
Civilian	15
Interdepartmental	10
Total	396

Deployments

JA Centeno

1. January 2006: Winter Plasma Conference, Tucson, Arizona. Invited Speaker.
2. January 2006: Force Health Protection and Readiness Programs, Biomonitoring Working Group Meeting, Va, Working Group Member.
3. January 2006: 2006 Army Minority College Relations Workshop, "Forging Partnership with Minority Institutions to Support the Warfighters," Conference participant.
4. February 2006: National Institutes of Health Study Session on Gene Drug Delivery, Temporary member and reviewer.
5. March 2006: US Navy Bureau of Medicine and Surgery, Meeting on Microbial Ecology and Geochemistry of Iraqi Airborne Dust, Invited speaker.
6. March 2006: USCHPPM, AFIP and Baltimore VA DU Follow-Up Program Meeting.
7. April 2006: US Army Engineer Research and Development Center, Environmental Laboratory, Vicksburg, Miss, Invited seminar speaker.
8. July 2006: District Attorney for the County of San Diego, Calif, Army expert witness.
9. August 2006: Force Health Protection Conference, Alburqueque, NM, Invited speaker and session convener.

Quality Assurance

1. The division successfully participated on 3 proficiency testing programs from the College of American Pathologists and 4 proficiency testing programs sponsored by the American Hygiene Association on environmental lead, and other proficiency testing programs on blood-lead and trace metals sponsored by the New York Department of Health.
2. The division successfully participated on the Regular European Inter-Laboratory Evaluation Program (REIMEP-18) for measurements of uranium and uranium-isotopic ratios. This program is conducted in collaboration with the European Institute for Reference Materials and Measurements.
3. The division conducted toxic metals quality assurance analyses of water in support of the quality assurance program for the AFIP DLAM facilities and the AFIP Safety Office.

EDUCATION

Presentations and Seminars

Members of the division presented 10 invited lectures, seminars and conference abstracts representing over 1310 man-hours. Dates and titles are listed at the end of this report.

Courses

In collaboration with the Education and Research Programs Branch, division staff organized 3 AFIP short courses, and gave a total of 10 lectures. These activities had a total of 150 attendees for approximately 530 man-hours. The following short courses organized by the Division of Biophysical Toxicology were offered in 2006:

1. In 2006, the AFIP Short Course on Environmental Pathology titled "Medical Geology: Metals, Health and the Environment" was held in 2 different countries. Full financial support for these courses was obtained from national, international and local organizations where the courses were held.
   a. May 21, 2006; 9th International Symposium on Metal Ions in Biology and Medicine, University of Coimbra, Lisboa, Portugal. Sponsorship by: AFIP, US Geological Survey, University of Coimbra, International Union of Geological Sciences (IUGS), International Medical Geology Association (IMGA), (JA Centeno, Course Director and

Lecturer).

b. May 25-27, 2006; University of Aveiro, Aveiro, Portugal. Sponsorship: AFIP, University of Aveiro, IUGS, IMGA (JA Centeno, Course Director and Lecturer).
c. August 9, 2006; 9th Annual Force Health Protection Conference, Albuquerque, New Mexico. Sponsorship by: AFIP, USGS, US Army Center for Health Promotion and Preventive Medicine, IUGS, IMGA (JA Centeno, Course Director and Lecturer).
d. September 18, 2006; XXVI International Congress of the Academy of Pathology – Environmental Pathology Symposium, Montreal, Canada. Sponsorship by: AFIP, USGS, International Academy of Pathology, IMGA (JA Centeno, Lecturer).
e. September 24, 2006; International Symposium on Environmental Geochemistry andHealth, Beijing, China. Sponsorship by: AFIP, USGS, Institute of Geochemistry-PRC, IUGS, IMGA (JA Centeno, Course Director and Lecturer).

Trainees

In 2006, division staff provided training to the following personnel:

1. One postdoctoral fellow under the DoD Congressionally Mandated Prostate Cancer Program.
2. One Clinical Toxicologist, University of Leiden-Medical School, The Netherlands.
3. Two high-school students (2 months internship on environmental and biophysical toxicology)

Faculty Appointments

1. Adjunct Professor of Environmental and Occupational Health, The George Washington University-School of Public Health, JA Centeno; 2002-present.
2. Distinguished Visiting Professor, University of Turabo, School of Sciences and Technology, Caguas, Puerto Rico, JA Centeno, 2004-present.
3. Adjunct Professor of Environmental Sciences, Jackson State University, College of Engineering, Science and Technology (CSET), Environmental Science PhD Program, Jackson, Miss, JA Centeno, 2005-present.
4. Visiting Professor, Hope University School of Medicine, Belize (Dr. Jose A. Centeno)
5. Guest Professorship, China University of Mining and Technology, Beijing, China, JA Centeno.

Presentations: Invited lectures and presentation of research abstracts at national and international conferences

1. January 2006: 2006 Winter Conference on Plasma Spectrochemistry, Tucson, Ariz, "Trace element speciation in environmental medicine – arsenic and depleted uranium as examples," Invited speaker, JA Centeno.
2. April 2006: US Army Engineer Research and Development Center – Environmental Laboratory, Vicksburg, Miss, "Medical geology: an emerging discipline in support of environmental and military medicine," Invited speaker, JA Centeno.
3. May 2006: The Royal Swedish Academy of Sciences, International Workshop on Medical Geology, Stockholm, Sweden, "Global impacts of geogenic arsenic: a medical geology research case," Invited speaker, JA Centeno.
4. May 2006: 9th International Symposium on Metal Ions in Biology and Medicine, Lisbon, Portugal, "Health risks from long term mercury exposure," Invited penary speaker, JA Centeno.
5. August 2006: 9th Annual Force Health Protection Conference, Albuquerque, NM, "Medical geology: an emerging discipline in environmental and military medicine," Invited speaker, JA Centeno.
6. August 2006: 9th Annual Force Health Protection Conference, Albuquerque, NM, "Medical geology and the emergence of infectious diseases," Invited speaker, JA Centeno.
7. August 2006: 9th Annual Force Health Protection Conference, Albuquerque, NM, "Laser ablation ICP-MS analysis: elemental and chemical mapping of trace and toxic metals," Invited speaker, JA Centeno.
8. September 2006: 43rd Brazilian Geological Congress, Aracaju, Brazil, "Medical geology: an emerging discipline in environmental medicine and public health," Invited keynote speaker, JA Centeno.
9. September 2006: XXVI International Congress of the Academy of Pathology – Environmental Pathology Symposium, Montreal, Canada, "Health effects of airborne dust: the role of trace elements and compounds," Invited speaker, JA Centeno.

10. September 2006: 7th International Symposium on Environmental Geochemistry and Health (ISEGH 2006), Beijing, China, "Medical geology:– the missing link between medicine and earth sciences," Invited speaker, JA Centeno.
11. November 2006: University of Texas at Arlington, Department of Earth and Environmental Sciences, Arlington, Tex, "Metals, metalloids and human diseases: chronic arsenic poisoning as a research case study," Invited speaker, JA Centeno.
12. November 2006: British Geological Survey, Nottingham, UK, "Medical geology and the work of the Armed Forces Institute of Pathology," Invited speaker, JA Centeno.

RESEARCH

Publications:

Division staff published 2 journal articles, 3 book chapters, and 2 extended manuscripts. The citation for each publication is given below. Nine other manuscripts were submitted and accepted for publication, and 14 research abstracts were published in conferences' book of abstracts and/or book of proceedings.

In addition, in 2006 division staff participated on the publication of 3 new books: *Metal Ions in Biology and Medicine,* Vol 9 (John Libbey Eurotext; JA Centeno, co-editor and contributing author); *Depleted Uranium – Properties, Uses, and Health Consequences*, (CRC Publishing; JA Centeno, contributing author); *Managing Arsenic in the Environment – From Soils to Human Health* (CSIRO Publishing; JA Centeno, contributing author).

Journal Articles

1. Christian WY, Hopenhayn C, Centeno JA, Todorov TI. Distribution of urinary selenium and arsenic among pregnant women exposed to arsenic in drinking water. *Environmental Research*. 2006;100:115-122.
2. Finkelman RB, Belkin HE, Centeno JA. Health impacts of coal: should we be concerned? *Geotimes*. 2006;30:31-35.

Other Publications—Extended Manuscripts

1. Chin-Hsiao TsengP1P, Ching-Ping TsengP1P, Choon-Khim ChongP1P, Tong-Yuan TaiP1P, Jose A. Centeno*P P2006. Arsenic and peripheral arterial disease in Taiwan. In: Alpoim MC, Norais PV, Santos MA, Cristovao AJ, Centeno JA, Collery P, eds. *Metal Ions in Biology and Medicine*, Vol. 9PthP. Paris: John Libbey Eurotext; 2006: pp 511-517.
2. Mosley C, Todorov TI, Tseng CH, Centeno JA.* 2006. Characterization of arsenic species by raman microspectroscopy. In: Alpoim MC, Norais PV, Santos MA, Cristovao AJ, Centeno JA, Collery P, eds. *Metal Ions in Biology and Medicine*, Vol 9Pth P. Paris: John Libbey Eurotext; 2006: pp 70-74.

Book Chapters

1. Centeno JA, Tchounwou PB, Patlolla AK, Mullick FG, Murakata L, Meza E, Gibb H, Longfellow D, and Yedjou CG. Environmental pathology and health effects of arsenic poisoning: a critical review. In: Naidu R, Smith E, Smith J and Bhattacharya P, eds. *Managing Arsenic In the Environment: From Soil to Human Health*. Chapter 17. Adelaide, Australia:CSIRO Publishing Corp;2006: pp 311-327. ISBN: 1-57808-425-3.
2. Selinus O, Finkelman RB, Centeno JA. Human health and ecosystems. In: Zektser IS, Marker B, Ridgway J, Rogachevskaya L, and Vartanyan G, eds. *Geology and Ecosystems*. Part IV. Springer;2006: ISBN 0-387-29292-6.

Research Abstracts Published in Books of Abstracts and/or Conference Proceedings:

1. Centeno JA, 2006. The emerging discipline of medical geology: health risks from long-term Hg exposure. In: Book of Abstracts: 9th International Symposium on Metal Ions in Biology and Medicine, Lisboa, Portugal; pp 35, PL-11.
2. Centeno JA, Finkelman RB, Selinus O, Mullick FG. Global impacts of geogenic arsenic: a medical geology research case. In: Summary of Abstracts: International Symposium on Medical Geology, Royal Swedish Academy of Sciences, Stockholm, Sweden. May 18, 2006.
3. Centeno JA, Cook A, Weinstein P. Environmental toxicology and exposure to natural dust: the role of trace elements. In: Proceedings of the 7th International Symposium on Environmental Geochemistry. Chinese Journal of Geochemistry 25(Suppl.);222:2006.
4. Centeno JA. Medical geology: an emerging discipline in support of environmental medicine and public health. In: Proceedings: XLIII Brazilian Geological Congress. Aracaju, Brazil. 7 September 2006.
5. Centeno JA, Cook A, Weinstein P. Health effects of natural and mineral dust: the role of

trace elements and compounds. In: Proceedings (CD version): XXVI International Congress of the International Academy of Pathology – Environmental Pathology Symposium SYM25, 2006. Montreal, Canada.

6. Centeno JA. Medical geology: an emerging discipline in environmental and military medicine. In: Book of Abstracts: 9th Annual Force Health Protection Conference, Albuquerque, NM, pp. 73.
7. Gray MA, Centeno JA, Todorov TI, Slaney DP, Nacey JN. Environmental exposure to Cd, Zn, and Se and risk of prostate cancer. In: Book of Abstracts: 9th International Symposium on Metal Ions in Biology and Medicine, Lisboa, Portugal; pp 61, 0-21.
8. Kolker KA, Conko K, Koslo K, Panov Y, Gibb H, Centeno JA, Korchemagin V, Gunchenko V. Environmental and occupational exposure to inorganic Hg in Gorlovka, Ukraine. In: Book of Abstracts: 8th International Conference on Mercury as a Global Pollutant, Madison, WI, August 2006.
9. Mosley CN, Centeno JA, Todorov TI. Characterization of arsenic species by Raman microspectroscopy. In: Book of Abstracts: 9th International Symposium on Metal Ions in Biology and Medicine, Lisboa, Portugal; pp. 139, 0-99.
10. Selinus O, Finkelman RB, Centeno JA, 2006. The Medical Geology Revolution. In: Proceedings of the 7th International Symposium on Environmental Geochemistry. Chinese Journal of Geochemistry 25(Suppl.);81:2006.
11. Squibb KS, Todorov TI, Centeno JA, Engelhardt S, and McDiarmid MA. Blood uranium concentration as a biomarker of human exposure to depleted uranium (DU) in Gulf War I veterans with embedded fragments. In: Book of Abstracts: Society of Toxicology.
12. Tchounwou PB, Centeno JA, Patlolla AK. Arsenic toxicity and carcinogenesis: A health risk assessment and management approach. In: Book of Abstracts: 9th International Symposium on Metal Ions in Biology and Medicine, Lisboa, Portugal; pp. 46, 0-6.
13. Todorv TI, Gray MA, Kadjacsy-Balla A, Mullick FG, Centeno JA. Cd, Zn, Se and As content in fresh and paraffin embedded prostate tissues. In: Book of Abstracts: 9th International Symposium on Metal Ions in Biology and Medicine, Lisboa, Portugal; pp 143, 0-103.
14. Todorov TI, Potter K, Reedy EA, Centeno JA. Laser ablation ICP-MS analyses: elemental and chemical mapping of trace and toxic metals in pathological and forensic specimens. In: Book of Abstracts: 9th Annual Force Health Protection Conference, Albuquerque, NM, pp. 174.

Research Projects

JA Centeno, PI

1. Depleted uranium follow-up program: biological surveillance, chemical analysis and repository of specimen.
2. Dietary and occupational risk factors for prostate disease.
3. Reliability of the determination of Cd, Zn and Se levels in paraffin-embedded prostate tissue.
4. Histopathology and laser raman microprobe analysis of regional lymph nodes from patients with silicone breast implants.
5. Development of the international tissue and tumor repository for chronic arseniasis.

Collaborative Research Projects Developed/Continued During 2006

1. Uranium-spiked control semen study statement of work. In collaboration with Dr. Melissa McDiarmid and Dr, Katherine Squibb, VA-Baltimore Center and University of Maryland, Departments of Toxicology and Occupational Medicine.
2. The chemical and biological analysis of airborne dust from OIF and Kuwaiti theaters. In collaboration with CDR Mark Lyles, Navy Bureau of Medicine and Surgery, BUMED.
3. Microbial ecology and geochemistry of Iraqi airborne dust. In collaboration with Dr. Terry Sobecki, US Army Corps of Engineers, US Army Engineer Research and Development Center; CDR Mark Lyles, BUMED.
4. Chemical analysis and microspectroscopy studies of tungsten metal alloys and fine particulate desert sand. In collaboration with the Naval Health Research Center, Environmental Health Effects Laboratory, Wright Patterson Air Force Base, Dayton, Ohio; CDR Gail Chapman, PI.
5. Fernald Workers' Medical Monitoring Program: renal biomarkers of workplace uranium exposure. In collaboration with Dr. Susan Pinney, University of Cincinnati, Medical Center.

6. Bone formation studies by magnetic resonance microscopy. In collaboration with Dr. Kimberlee Potter, AFIP.
7. Feasibility of assessing health risks from long-term mercury exposure in Gorlovka, Ukraine. In collaboration with USGS.

In Operation Iraqi Freedom (OIF) related studies, division staff collaborated with the VA Baltimore Center, the Department of Toxicology-University of Maryland, Baltimore, MD, the Inorganic Laboratory Section at the CDC, USCHPPM, DoD Force Health Protection and Readiness Programs (Health Affairs), and the Navy Bureau of Medicine and Surgery (BUMED). The division is participating on a research program to study low levels of depleted uranium in tissues and body fluids from potentially exposed service personnel. In addition, the division is engaged on studies concerning the chemical and microspectroscopic characterization of airborne dust with PM20-40 and PM>10.

COLLABORATORS

Military/Federal

1. DI Bannon, US Army Center for Health Promotion and Preventive Medicine, Aberdeen, Md: Relative bioavailability of copper and lead in soil from military ranges using Colinus virginianus.
2. MA McDiarmid and K Squibb, University of Maryland, Baltimore and VA Baltimore Center: Follow-up and monitoring of Gulf War veterans with fragments of depleted uranium and other sources of depleted uranium exposure.
3. WB Jonas, USUHS and Samueli Institute for Information Biology: Effects of low and ultra-low doses of cadmium in RWPE-1 prostate cells.
4. WB Jonas, USUHS and Samueli Institute for Information Biology: Complex homeopathy drug development in neurodegenerative diseases.
5. J Medlin and G Plumlee, US Geological Survey: Environmental medicine of mining: related activities in the island of Marinduque, The Philippines.
6. A Kolker, US Geological Survey, H Gibb, Science International: Feasibility of assessing health risks from long-term mercury exposure in Gorlovka, Ukraine.
7. WF Regnault, Food and Drug Administration (FDA), Rockville, Md: Mechanistic determination of stress-induced dystrophic calcification in cardiovascular materials and devices.
8. WF Regnault, Food and Drug Administration (FDA), Rockville, Md: Assessment of calcium phosphate deposition mechanisms in dental and orthopedic applications.

International

1. Prof. Philip Weinstein, Dr. Angus Cook, University of Western Australia, School of Public Health Research: Assessing and preventing the disease burden from geogenic dusts.
2. Dr. Olle Selinus, Geological Survey of Sweden: Research collaboration on medical geology.
3. Prof. Dr. Sergio Caroli, Institute Nationale di Sanita, Rome, Italy: Research collaboration on speciation of trace elements and depleted uranium analysis.
4. Prof. Dr. Enrico Sabbioni, European Centre for the Validation of Alternative Methods, Joint Research Centre, Ispra, Italy: Research collaboration on toxicology of arsenic and nanotechnologies.
5. Prof. Dr. Chin-Hsiao Tseng, National Taiwan University Hospital, Taipei, Taiwan: Research collaboration on environmental-clinical toxicology, epidemiology and arsenic health effects.

PROFESSIONAL ACTIVITIES

Official Trips

JA Centeno

1. January 2006: Force Health Protection and Readiness Programs, Biomonitoring Working Group Meeting, Va.
2. January 2006: 2006 Army Minority College Relations Workshop, "Forging partnership with minority institutions to support the warfighters."
3. March 2006: US Navy Bureau of Medicine and Surgery; Meeting on Microbial Ecology and Geochemistry of Iraqi Airborne Dust.
4. March 2006: USCHPPM, AFIP and Baltimore VA DU Follow-Up Program Meeting.
5. April 2006: US Army Engineer Research and Development Center, Environmental Labora-

tory, Vicksburg, Miss.
6. July 2006: District Attorney for the County of San Diego, Calif, Army expert witness.

Academic Appointments

1. Adjunct Professor of Environmental and Occupational Health, The George Washington University, Washington, DC, JA Centeno.
2. Distinguished Visiting Professor, University of Turabo, Caguas, Puerto Rico, JA Centeno.
3. Adjunct Professor, Environmental Toxicology PhD Program, Jackson State University, Jackson, Miss, JA Centeno.

Editorial Work

JA Centeno

Manuscripts Reviewed

1. *Biological Trace Element Research*
2. *Environmental Geochemistry and Health*
3. *International Journal of Environmental Research and Public Health*

Editorial Boards

1. *Journal of Environmental Monitoring*
2. *Biological Trace Element Research*
3. *International Journal of Environmental Research and Public Health*
4. *Environmental Health Focus*
5. *Environmental Toxicology*

Committees

JA Centeno

Intramural:
AFIP-Research Committee (1995–present).

Extramural:

1. Member, DoD Force Health Protection and Readiness Programs (Health Affairs), Biomonitoring Working Group (2004–present).
2. Member, National Academy of Science – National Research Council, Committee on Research Priorities on Earth Sciences and Public Health (2004–present).
3. US-INDO Working Group on Occupational and Environmental Health (2004-present).
4. Co-Chairman and Co-Founder, International Medical Geology Association (2000–present).
5. Officer, Commission on Geoscience for Environmental Management (GEM), International Union of Geological Sciences (2005–present).
6. Chair, External Advisory Committee, National Science Foundation –STARGE Program at Jackson State University, Jackson, Miss (1999–present).
7. Chair, External Advisory Board-National Institutes of Health MBRS-RISE Program for Universidad del Este, Carolina, PR (2004 –present).
8. Member, External Advisory Committee-National Institutes of Health Research Centers for Minority Institutions, Jackson State University, Jackson, Miss (1997–present).
9. Member, US Presidential Advisory Board on Health, Sciences, Math and Engineering, Ana G. Mendez University System of Puerto Rico, San Juan, PR (1995–present).
10. Member, External Advisory Board, National Science Foundation-Minority Institutions of Excellence Program, Metropolitan University, San Juan, PR (1999–present).
11. Member, International Scientific Committee, International Conference on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, GSF, Germany (2001–present).
12. Member, International Parent Scientific Committee, International Symposium on Metal Ions in Biology and Medicine (1998–present).
13. Member, Federation of European Societies on Trace Elements and Minerals, GMS Society (2004–present).

DIVISION OF CHEMICAL MICROSCOPY

H. Marie Jenkins, HT, ASCP, Histochemical Technologist

IMPACT

- The laboratory conducts analyses on more calculi than any other laboratory in the military.
- The laboratory provides scanning electron microscopy with energy-dispersive x-ray analysis for the AFIP and DoD.

CONSULTATION

Military installations submitted 716 specimens for identification, and 116 were received from VA medical centers.

Cases

Military	716
Army (573)	
Air Force (143}	
Federal (VA)	116
Civilian	1
Interdepartmental	3
Total	836

EDUCATION

Trainees

Provided training in Scanning Electron Microscopy and FTIR for one summer intern.

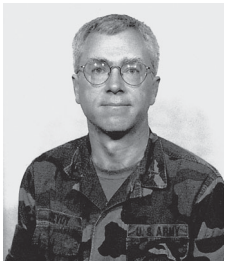
Trained members the AFIP and WRAIR staff in SEM and FTIR techniques.

RESEARCH

Projects

Evaluation of the composition of urinary calculi in military personnel.

DIVISION OF INFECTIOUS AND TROPICAL DISEASES PATHOLOGY



Peter L. McEvoy, COL, MC, USA
Chief
Date of Appointment – 14 April 1997/2001

STAFF

Medical:

Peter L. McEvoy, COL, MC, USA
Mary K. Klassen-Fischer, MD, Chief, Fungal Diseases Branch
Ronald C. Neafie, MS, Chief Parasitology Branch
Wayne M. Meyers, MD, PhD. Red Cross Volunteer
Douglas J. Wear, MD, DS, ARP, Associate Chairman
Ann M. Nelson, MD

Fellow:

Melanie Maleombho-Usher, MD, Red Cross Volunteer

Administrative:

Darlene Wilson, Office Manager, ARP
(D) Krystal Diouf, Office Manager, Contractor

IMPACT

Operation Iraqi Freedom produced significant numbers of cutaneous leishmaniasis that began arriving in the division. A Leishmania Registry was established to capture patient data and allow for long term follow-up. As of December 31, 2006, 1269 patients were enrolled, 1088 Army, 27 Air Force, 35 Navy, 41 unknown, and 78 civilians. Of these, 812 patients were positive, 737 Army, 4 Air Force, 14 Navy, 19 unknown, and 38 civilians. Three patients with visceral leishmaniasis are included. Our division is the military's gold standard for the diagnosis of leishmaniasis.

CONSULTATION

Infectious diseases are a major cause of morbidity in the military and a significant possible cause of mortality, as judged by DHS. Our division is the only group of pathologists in the world dedicated to the pathology of infectious diseases. Glass slides and paraffin blocks of tissues suspected to contain lesions caused by infectious disease agents are stained with a number of special stains to capture gram-positive or gram-negative bacteria, fungi, mycobacteria, or immunostains for viruses. Our many years of experience observing infectious agents' destructive footprints in tissue, and the tissue's reaction, help us judge whether a lesion is due to an infectious agent and what is the most likely etiologic agent.

Cases	***Completed***
Military	307
Army (223)	
Navy (38)	
Air Force (46)	
Federal	78
VA (68)	
Other (10)	
Civilian	224
Interdepartmental	973
Total	1,582

Clinical Appointments outside AFIP

1. Visiting Pathologist WRAMC, PL McEvoy.
2. Visiting Pathologist, WRAMC, MK Klassen-Fischer.

Deployments

1. Monthly: WRAMC, sign out pathology cases, PL McEvoy, MK Klassen-Fischer.
2. May 2006: Honolulu, Hawaii, Armed Forces Epidemiological Board, MK Klassen-Fischer.

EDUCATION

Courses

Division staff participated as faculty in one AFIP course in 2006 and the Military Tropical Medicine Course at USUHS.

Trainees

The division hosted 2 Red Cross volunteers and 2 residents in 2006.

Presentations

1. January 2006: Bangkok, Thailand, Department of Pathology, Mahidol University, "Unknown case presentations," RC Neafie.
2. February 2006: Atlanta, Ga, Poster presentation, Annual USCAP Meeting, "Pathologic diagnoses of cutaneous diseases clinically mimicking leishmaniasis," RC Neafie.
3. February 2006: Washington DC, Helminthological Society of Washington, "A rare case," RC Neafie.
4. February 2006: Atlanta, Ga, USCAP, Infectious Disease Evening Specialty Conference, "Lecture," MK Klassen-Fischer.
5. February 2006: Washington DC, The Helminthological Society of Washington, "Identification of arthropods in human tissues," MK Klassen-Fischer.
6. March 2006: Washington DC, WRAMC Infectious Disease Fellowship Program, "Protozoa and helminth review," PL McEvoy.
7. March 2006: Rockville, Md, AFIP 16th Annual Anatomic Pathology Course, "Review of infectious disease pathology," PL McEvoy.
8. May 2006: Honolulu Hawaii, Armed Forces Epidemiological Board, "Leishmaniasis Registry," MK Klassen-Fischer.
9. July 2006: Baltimore, Md, Johns Hopkins School of Hygiene and Public Health Summer Tropical Medicine Course, "Pathology of tropical diseases," PL McEvoy.
10. July 2006: Bethesda, Md, Military Tropical Medicine Course, USUHS, "Loaisis and dracunculiasis," RC Neafie.
11. August 2006: Washington DC, WRAMC Combined Pathology Residents Program, "Review of infectious disease pathology, part 1 (helminths)," PL McEvoy.
12. August 2006: Washington DC, WRAMC Combined Pathology Residents Program, "Review of infectious disease pathology, part 2 (protozoa and fungi)," PL McEvoy.
13. September 2006: Montreal, Canada, Poster, International Academy of Pathology, XXVI International Congress, "Birefringence of helminths patholgenic to humans," RC Neafie.
14. September 2006: Montreal, Canada, Symposium 50, International Academy of Pathology, XXVI International Congress, "Diagnosis of select parasitic infections in the immunocompromised host," RC Neafie.
15. September 2006: Washington DC, WRAMC Combined Pathology Residents Program, "Review of infectious disease pathology, part 3 (bacterial infections)," PL McEvoy.
16. September 2006: Montreal, Quebec, Canada, International Academy of Pathology, XXVI International Congress, Symposium on Infectious Diseases (Topic: Mycobacterial diseases, past, present and future), "Clinicopathologic classification of Mycobacterium ulcerans disease (Buruli ulcer)," WM Meyers.
17. September 2006: Montreal, Quebec, Canada, International Academy of Pathology, XXVI International Congress, Infectious Disease Short Course: Histopathology and Mycology of Fungal Infections, "Filamentous fungi in histologic sections," MK Klassen-Fischer.
18. October 2006: Washington, DC, AFIP Weekly Professional Staff conference, "Birefringence of helminths patholgenic to humans," RC Neafie.
19. October 2006: Villars-sur-Ollon, Switzerland, Second Conference on New Frontiers in Microbiology and Infection, "Mycobacterial infections: basic research visits clinical experience and vice versa," "Mycobacterium ulcerans: Pathogenesis, diagnosis, control and treatment," WM Meyers.

20. October 2006: Washington DC, AFIP Weekly Professional Staff Conference, "Filamentous fungi in histologic sections," MK Klassen-Fischer.
21. November 2006: Washington DC, WRAMC Combined Pathology Residents Program, "Review of infectious disease pathology, part 4 (viral infections)," PL McEvoy.
22. November 2006: Frederick Md, "Right before your eyes," DJ Wear.

RESEARCH

Publications

Journal Articles

1. Debacke M, Portaels F, Aguiar J, Steunou C, Zinsou C, Meyers WM, Dramaix M. Risk factors for Buruli ulcer, Benin. *Emerg. Infect. Dis*. 2006;12:1325-1331.
2. Kiszewski AE, Becerril E, Aguilar LD, Kader ITA, Meyers WM, Klassen-Fischer MK. Fungi as bioweapons. *Clin Lab Med*. 2006;26(2):387-395, ix.
3. Lane JE, Walsh DS, Meyers WM, Klassen-Fischer MK, Kent DE, Cohen DJ. Borderline tuberculoid leprosy in a woman from the state of Georgia with armadillo exposure. J. Am. Acad. *Dermatol*. 2006;55:714-716.
4. Phanzu DM, Bafende EA, Dunda BK, Imposo DB, Kibadi AK, Nsiangana SZ, Singa JN, Meyers WM, Suykerbuyk P, Portaels F. Mycobacterium ulcerans disease (Buruli ulcer) in a rural hospital in Bas-Congo, Democratic Republic of Congo, 2002-2004. *Am. J. Trop. Med. Hyg*. 2006;75:311-314.
5. Portaels F, Hernàndez Pando R. The local immune response in ulcerative lesions of Buruli disease. *Clin. Expl. Immunol*. 2006;143:445-451.
6. Stragier P, Ablordey A, Bayonne LM, Lugor YL, Sindani IS, Suykerbuyk P, Wabinga H, Meyers WM, Portaels F. Heterogeneity among Mycobacterium ulcerans isolates from Africa (Dispatches). *Emerg. Infect. Dis*. 2006;12:844-847.

Abstracts

1. Klassen-Fischer MK, Hallman JR, Neafie RC. Pathologic Diagnoses of Cutaneous Diseases Clinically Mimicking Leishmaniasis. *Lab Invest*. 2006;86(Supp 1):256A, Abstract 1188.
2. Lewin-Smith M, Neafie R, Mullick F. Birefringence of helminthes pathogenic to humans. *Mod Pathol*. 2006;19(Suppl 3):133, Abstract 611.
3. Maleombho-Usher M, Abalos-Neafie F, Portaels F, Fanburg-Smith JC, Meyers WM. Mycobacterium ulcerans osteomyelitis in children with Buruli ulcer: A clinicopathologic study of 26 patients. *Mod Pathol*. 2006;19(Suppl 3):133, Abstract 614.

Book Chapters

1. Meyers WM, Portaels F. Mycobacterium ulcerans infection (Buruli ulcer). In: Guerrant, Walker & Weller, eds. *Tropical Infectious Diseases: Principles, Pathogens, and Practice*. 2nd edition (two volumes). New York: Churchill Livingstone (Elsevier); 2006: Vol. 1, Chapter 37, pp. 428-435.
2. Meyers WM. Leprosy. In: Guerrant, Walker & Weller, eds. *Tropical Infectious Diseases: Principles, Pathogens, and Practice*. 2nd edition (two volumes). New York: Churchill Livingstone (Elsevier); 2006: Vol. 1, Chapter 38, pp. 436-447.
3. Portaels F, Meyers WM. Buruli ulcer. In: Faber WR, Hay RJ, Naafs B, eds. *Imported Skin Diseases*. Maarssen, The Netherlands: Elsevier Gezondheidszorg; 2006: pp 117-129.
4. Selim MA, Madden JF, McEvoy PL, Shea CR. Genital skin (chapter 2), In: Tannenbaum M, Madden JF, eds. *Diagnostic Atlas of Genitourinary Pathology*. Churchill Livingstone-Elsevier: 2006.

Other Publications

1. McEvoy PL. Arthropod gross identification, Cimex lectularius. HQAP-1-3, 2006. AFIP.
2. Zelazny A, Li L, Fischer S, Wortmann G, Hochberg L, Weina P, Mendez J, Klassen-Fischer M, Aronson N. Comparison of different Leishmania PCR assays for the identification of Old World Leishmania. NIH Research Festival, Bethesda, Md, October 17-18, 2006.

Collaborators

Military

1. WRAMC, Infectious Disease Department: Leishmaniasis.
2. WRAIR, Leishmaniasis Diagnostic Laboratory.
3. WRAIR, Department of Entomology: Leishmaniasis.

4. USAF, Team studying leishmaniasis in USAF.
5. GEIS, Reporting infectious diseases in active duty military personnel.

Civilian:

1. American Leprosy Mission.
2. Institut Médical Evangélique, Kimpese, D. R. Congo.
3. Institute of Tropical Medicine, Antwerp, Belgium.
4. Centre Sanitaire et Nutritionnel (Gbemoten), Zagnanado, Republic of Benin.
5. Ministry of Health (National Program for Leprosy and Buruli Ulcer), Cotonou, Benin.
6. Department of Pathology, Instituto Nacional de Ciencias Medicas y Nutrición, Mexico DF. Mexico.
7. Imunobiologia, Instituto de Biologia Molecular e Celular, Porto, Portugal.
8. Life and Health Sciences Research Institute, School of Health Sciences, Campus de Gualtar, Braga, Portugal.
9. Dermatologic Surgery Specialists, and Medical College of Georgia, Macon, Ga.

PROFESSIONAL ACTIVITIES

Official trips

1. February 2006: Atlanta, Ga, USCAP, RC Neafie, MK Klassen-Fischer, WM Meyers.
2. May 2006: Greenville, SC, Transition Board meeting, overseeing the linking of the Leonard Wood Memorial (American Leprosy Foundation) (Rockville, Md) with American Leprosy Missions (Greenville, SC), including the Leonard Wood Memorial Research Center in Cebu, Philippines.
3. September 2006: Montreal, Quebec, Canada, XXVI International Congress of the International Academy of Pathology, RC Neafie, MK Klassen-Fischer, WM Meyers.
4. November 2006: Nashville, Tenn, Board Meeting, Leonard Wood Memorial (American Leprosy Foundation).

Editorial

1. Reviewed 5 manuscripts for scientific journals, WM Meyers
2. Reviewed photomicrographs for various articles in Clinical Infectious Disease, MK Klassen-Fischer.
3. Reviewed abstracts for USCAP meeting, MK Klassen-Fischer

Honors

President of Binford Dammin Society of Infectious Disease Pathologists, MK Klassen-Fischer.

DIVISION OF MICROBIOLOGY

Robert Crawford, PhD
Division Chief
Date of Appointment – November 1, 2003

ORGANIZATION

The division is organized into 10 branches and the office of the chief.

Bacteriology—Stephen Francesconi, PhD
Molecular Biology—Ketan Patel, PhD
Molecular Genomics—Mark Chrustowski
Vaccines and Therapeutics—Mina Izadjoo, PhD
Optical Spectroscopy—Kathryn S. Kalasinsky, PhD
Virology—Sue Cross, PhD
Immunodiagnostics—UB Gunasinghe, PhD
Special Projects—Binxue Zhang, PhD
Quality Assurance—James Hanson, MAJ, USAF, Deputy Division Chief
Laboratory Operations—Michael Dobson, PhD

STAFF

Scientific:

Robert Crawford, PhD, Division Chief
James Hanson, Major, USAF, Chief, Quality Assurance, Deputy Division Chief
Patrick Kennedy, Captain, USAF, BSC, Program Manager
Michael Dobson, PhD, Chief, Laboratory Operations
Stephen Francesconi, PhD, Chief, Bacteriology
(A) Ketan Patel, PhD, Chief, Molecular Biology
(D) Susan Jones, PhD, Chief, Microbial Forensics Research, Genomics and Sequencing
Mark Chrustowski, Chief, Molecular Genomics
Mina Izadjoo, PhD, Chief, Vaccines and Therapeutics
Kathryn S. Kalasinsky, PhD, Chief, Optical Spectroscopy
Sue Cross, PhD, Chief, Virology
Binxue Zhang, PhD, Senior Research Scientist
Ukkubandage Gunasinghe, PhD, Senior Research Scientist
Curtis M. Sharkey, PhD, Research Virologist
(D) Michael Dempsey, MAJ, USAF, AFIT, PhD Student
(D) Kenesah Ferebee, TSgt, USAF, Laboratory Technician, NCOIC
(D) Bryan Balignot, SGT, USA, Laboratory Technician, Asst NCOIC
(D) Curtis Young, HM1, USN, Laboratory Technician, LSO
(A) Louis R. Corbin, HM2, USN, Laboratory Technician
(A) Lalaine Anova, Animal Research Associate
Robert Burgess, Microbiology Research Associate
Jill Cullen, Molecular Research Associate
Jennifer Engle, Molecular Research Associate
(A) Katie E. Green, Microbiology Research Associate
(A) Haven L. Hull, Molecular Research Associate
Elizabeth Kurrle, Molecular Research Associate
Justin Jay, Molecular Research Associate
Rachel Jeanty, Virology Molecular Research Associate

Ellen LaMorena, Molecular Research Associate
Vanessa Marcel, Molecular Research Associate
Adrien Ravizee, Research Technician
April Shea, Spectroscopy Research Associate
Heidi St. John, Microbiology Research Associate
Wendell Thomas, Microbiology Research Associate
Joe Thompson, Animal Research Associate
Kimberly Wahowski, Microbiology Research Associate
Elizabeth Wallace, Microbiology Research Associate

Administrative

Levi Horton, Administrative Assistant, Division of Microbiology

IMPACT

The Division of Microbiology/Biodefense is one of the nation's foremost biodefense laboratories, providing broad spectrum microbial/biothreat laboratory research, testing and consultation for federal government agencies. As a primary strain repository and biostandards and reference laboratory for the military and civilian biodefense community, the Division grows and preserves strains of biothreat agents and prepares and provides the highest quality DNA/RNA for assay development and validation. It conducts proficiency testing for biological agent detection systems and is a part of the national Laboratory Response Network, performing advanced confirmation diagnoses of suspected infections as well as environmental testing for biothreat agents. The Division also provides education and research for DoD organizations worldwide in the area of microbial pathology.

DIAGNOSTIC CONSULTATION

The Division of microbiology analyzed 72 cases in 2006.

Type of Case		*Source of Case*	
Environmental	61	FBI	17
		CSS	44
Clinical	11	WRAMC	10
		GW Hospital	1
TOTAL	72	TOTAL	72

Our division developed five (3) new methods for microbial analysis as listed below:

1. Designed and optimized 17 conventional *F. tularensis* subspecies-specific PCR assays, including one differential among 3 different subspecies tularensis genotypes.
2. MESO Scale instrument validation for live and dead bio-threat agents.
3. Development of New ECO assays.

National/International Consultations

1. Federal Bureau of Investigation, Washington, DC.
2. Edgewood Chemical and Biological Command, Aberdeen, Md.
3. National Interagency Genome Science Coordinating Committee, Arlington, Va.
4. Defense Threat Reduction Agency (DTRA) Tashkent, Uzbekistan.
5. Defense Threat Reduction Agency (DTRA) Almaty, Kazakhstan.
6. Department of Homeland Security, National Biological and Countermeasures Center, National BioForensic Analysis Center, Frederick, Md.

Quality Assurance

Inspection Teams

1. The CDC, USDA and Dept of Army Safety all inspected the newly constructed 4th floor Biosafety lab, which was approved for use.
2. AFIP's Biosurety program, of which the Division of Microbiology is a substantial component, was audited by the Army Inspector General.
3. A team from Mitretek, representing our Florida sponsor, conducted a systems audit of our Division.

Proficiency Exams

1. Our Division successfully completed 5 proficiency surveys provided by the College of American Pathologists: these include 3 Bacteriology and 2 Laboratory Preparedness surveys.

EDUCATION

Presentations and Seminars:

1. The Division of Microbiology presented 7 papers/posters at scientific conferences this year. Continuing education seminars were given throughout the year by external and internal professionals for the scientific staff of the division.
2. Mike Dempsey and Mark Chrustowski completed a 2-day course in FDA Process Validation in Medical Devices; 11-12 April 2006; Shirlington, Va.
3. Major Mike Dempsey defended and completed his PhD dissertation from the University of Nebraska after performing the research part of his degree in the Division of Microbiology.

Lectures

Staff members of the Division of Microbiology presented the following lectures as parts of courses organized and directed by the AFIP or other agencies.

1. Feb 2006: Baltimore, Md, Towson University Forensic Chemistry Seminar Series, "Spectral detection of biological weapons," KS Kalasinsky.
2. Feb 2006: Greenbelt, Md, Thermo Electron Vibrational Spectroscopy Research Symposium, "The role of infrared spectroscopy in biothreat detection," KS Kalasinsky.
3. Mar 2006: Chicago, Ill, Thermo Electron Vibrational Spectroscopy Research Symposium. "The role of infrared spectroscopy in biothreat detection," KS Kalasinsky.

Presentations

1. March 2006: Orlando, Fla, Pittsburgh Conference on Analytical Chemistry and Spectroscopy, "Spectroscopic measures in biothreat detection," KS Kalasinsky, A Shea, S Vanni, P Treado, T Powers, M Nelson.
2. May 2006: St. Bonaventure University, Field Collection and Advanced Diagnosis under Extreme Conditions, S Francesconi .
3. May 2006: Orlando, Fla: Conference on Chemical, Biological, Radiological/Nuclear, and Explosive, Air Force Medical Response, "The Army's Biosurety Program at AFIP," J Hanson.
4. July 2006: Orlando, Fla, Air Force Chemical, Biological, Radiological, Nuclear and Explosive Conference, "Armed Forces Institute of Pathology Proficiency Testing," P Kennedy, J Cullen.
5. July 2006: Orlando, Fla, Air Force Chemical, Biological, Radiological, Nuclear and Explosive Conference, "Bio-surety," J Hanson.
6. October 2006: Boston, Mass, Optics East Conference for Chemical and biological Sensor Diagnostics, Standards and Calibration, "Qualifying biomaterials for signature library construction," KS Kalasinsky, AA Shea.
7. November 2006: Somerset, NJ, Eastern Analytical Symposium, "Infrared and Raman detection of biological weapons," KS Kalasinsky.

RESEARCH

Publications

Journal Articles

1. Bhattacharjee AK, Izadjoo MJ, Zollinger WD, Nikolich MJ, Hoover DL. Comparison of protective efficacy of subcutaneous versus intranasal immunization of mice with a Brucella melitensis lipopolysaccharide subunit vaccine. *Infect Immun*. 2006;74(10):5820-5825.
2. Dempsey MP, Nietfeldt J, Ravel J, Hinrichs S, Crawford R, Benson AK. Paired-end sequence mapping detects extensive genomic rearrangement and translocation during divergence of *Francisella tularensis* subsp. tularensis and *Francisella tularensis* subsp. holarctica populations. *J Bacteriol*. 2006Aug;188(16):5904-5914.
3. Hanson JF, Taft SC, Weiss AA. Neutralizing antibodies and persistence of immunity following anthrax vaccination. *Clin Vaccine Immunol*. 2006 Feb;13(2):208-213.

Projects

The division maintained 30 research projects in 2006. Three Official Research Protocols were open as of December 31, 2006.

1. Use of Real-Time RT-PCR analysis developed by Binxue Zhang to characterize alphavirus strains, C Sharkey.

2. Production, purification, nucleic acid extraction, and characterization of poxviruses, S Cross, C Sharkey.
3. Production of viable virus and nucleic acids from alphaviruses flaviviruses and other viruses for Bioforensic Analysis Center, S Cross, C Sharkey.
4. Repository for poxviruses, alphaviruses, flaviviruses, and other viruses of value to DoD, S Cross, C Sharkey.
5. Laboratory Response Network Reference Laboratory competency testing and sample analysis, M Dobson, C Sharkey.
6. Raman chemical imaging biothreat detection, K Kalasinsky.
7. Infrared detection of biothreat materials, K Kalasinsky.
8. Development of a PCR-based assay for ricin, K Patel, S Francesconi, M Chrustowski.
9. Development of a PCR-based assay for Clostridium botulinum toxin, K Patel, S Francesconi, M Chrustowski.
10. Bioforensic Analysis Center microbial nucleic acid and cell production, S Francesconi.
11. Ecological and socio-economic factors of anthrax foci activity and improvements of its diagnosis and prophylaxis in Kazakhstan, S Francesconi.
12. Assessment of plague, anthrax, and tularemia in selected regions in Uzbekistan, S Francesconi.
13. Use of liposome or formulation with CpG DNA to enhance protective efficacy of li-popolysaccharide-based brucella subunit vaccine in BALB/c mice, MJ Izadjoo.
14. Geographic fifferentiation of Francisella tularensis using molecular methods, M Dempsey.
15. Microarry(nanogen) application for biothreat agents detection: array design, test and optimization, B Zhang.
16. Whole genome amplification for biothreat agents identification, B Zhang.
17. Clinical specificity of the Joint Biological Agent Identification and Diagnostic System (JBAIDS)-anthrax detection system, J Hanson.
18. Bioforensic Analysis Center microbial nucleic acid and cell production, S Francesconi.
19. Critical Reagent Program (CRP) nucleic acid production and research, S Francesconi.
20. Genetic characterization of CRP threat microorganisms using Riboprinter, M Dobson, M Izadjoo.
21. Real-time PCR assay testing and optimization using the RAZOR pathogen detection system.
22. Whole genome amplification (WGA) of Bacillus anthracis genomic DNA followed by real-time PCR identification and quantification, B Zhang, R Crawford.
23. Comparison of various molecular and spectral analysis methods (PFGE, AFLP, MLVA, ribotyping, and raman) on a common *F. tularensis* strain set.
24. Microarray (nanogen) application for biothreat agents detection: array design, test and optimization.
25. Designed and optimized an eight target muleti-locus variable numbered tandem repeat analysis (MLVA) "mini-mlva" assay for subspecies and strain level discrimination of *F. tularensis, Y. pestis* and pseudotuberculosis.
26. Proteomics for differentiation of *Yersinia pestis*, its biovars, and *Y. pseudotuberculosis*.
27. Use of liposome or formulation with CpG DNA to enhance protective efficacy of lipopolysaccharide-based brucella subunit vaccine in BALB/c mice, MJ Izadjoo.
28. Multi Center evaluation of sample processing methods for nucleic acid extraction, MJ Izadjoo.
29. Use of RNA technology to inhibit expression of virulence genes from biowarfare agents, MJ Izadjoo.
30. Efficacy testing of novel antiviral drugs extracted from marine microorganisms, MJ Izadjoo.

Collaborators:

Military/Federal:

1. Col Steve Putbrese, Laboratory Chief, Elemendorf Air Force Base, Alaska, and Bernd Jilly, MD, Alaska Public Health Laboratory Director, Alaskan Wild-type *F. tularensis* Isolate Providers for Project: Geographic differentiation of *Francisella tularensis* using molecular methods.
2. CAPT James Burans, National Bioforensic Analysis Center, Department of Homeland Security, Frederick, Md.

Civilian:

1. Dr. Mark Wise, Senior Scientist, Bacterial Barcodes Inc., Athens, Ga: Diversilab rep-PCR.

2. Pat Treado, ChemImage Corporation, Pittsburgh, Pa: Raman Chemical Imaging Biothreat Detection.
3. Dr. Norwood, USAMRIID, Ft Detrick, Md: Multicenter trial on sample processing for biowarfare agents.
4. Dr. Trevor Castor, Aphios Corporation, Boston, Mass: Development of novel antiviral drugs.
5. Dr. Sidney Altman (Nobel Prize Winner), Yale University, New Haven, Conn: Inactivation of biowarfare agents using an RNA technology.
6. Dr. Steve Hinrichs, Dr. Paul Fey, and Dr. Pete Iwen, University of Nebraska Medical Center: DNA preparation and proteomics.
7. Dr. Andy Benson, University of Nebraska, Lincoln: Comparative genomic hybridization (CGH) microarrays.
8. Dr. Paul Keim, Miles Stanley, Northern Arizona University: Worldwide *F. tularensis* strain collection and MLVA for project: geographic differentiation of *Francisella tularensis* using molecular methods.
9. Dr. Jacques Ravel, The Institute for Genomic Research (TIGR): Comparative genomics bioinformatics and illustrations for project: geographic differentiation of *Francisella tularensi*s using molecular methods.
10. Dr. Jonathan Phillips and Walter Berger, Mitretek, Inc., Falls Church, Va.
11. Dr. Aurba Bhattacharjee, Walter Reed Army Institute of Research, Silver Spring, Md: Brucella vaccine research.

International:

1. Dr. Amijon Nematov, Director, Center for Quarantine and Prophylaxis of Most Hazardous Infections, Ministry of Health, Tashkent, Uzbekistan.
2. Dr. Alim Aikimbayev, Deputy Director, Kazakhstan Scientific Center for Quarantine of Zoonotic Diseases, Ministry of Health, Almaty, Kazakhstan.
3. Dr. Miguel Vinas, Biomedical Research Center, University of Barcelona, Spain.
4. César Gutiérrez Martin, Department of Animal Health, Facultad de Veterinaria, Leon, Spain; Contributor of Spanish *F. tularensis* DNA collection for project: Geographic differentiation of *Francisella tularensis* using molecular methods.
5. Dr. Christine Lion, Laboratoire de Bacteriologie, Centre Hospitalier et Universitaire, Nancy, France; Contributor of French wild-type *F. tularensis* isolates for project: geographic differentiation of *Francisella tularensi*s using molecular methods.

Committees (Extramural):

Military:

1. USAF Laboratory Bio-defense Steering Committee, S Francesconi, P Kennedy.
2. Integrated Consortium of Laboratory Networks (Proficiency Test Subcommittee), P Kennedy, J Cullen.

Editorial Boards:

1. *Spectroscopy*, K Kalasinsky
2. *Spectrochimica Acta* Part A: Molecular Spectroscopy, K Kalasinsky

Offices and Committee Membership in National and International Societies:

1. Board of Managers, Coblentz Society, K Kalasinsky.
2. Newsletter Editor, Coblentz Society, K Kalasinsky.
3. Lippincott National Award Selection Committee, K Kalasinsky.

Committees (Intramural):

AFIP Institutional Review Board for Human Subjects, K Kalasinsky.

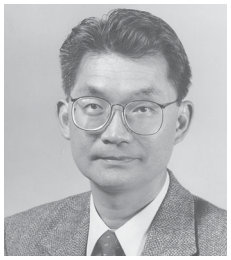
Official Trips:

1. February 2006: Flagstaff, Ariz, Northern Arizona University, Collaborative assay development, S Francesconi, E Wallace.
2. February/March 2006: Almaty, Kazakhstan, Tashkent, Uzbekistan, Collaborative research on *Bacillus anthracis*, S Francesconi.
3. March 2006: Salt Lake City, Utah, Idaho Technology, Inc, Training on new extraction methods to be used in the JBAIDS project, E. Kurrle.
4. March 2006: Reno, Nev, Annual meeting of the Society of Armed Forces Medical Laboratory

Scientists (SAFMLS), P Kennedy.

5. April 2006: Omaha, Neb, University of Nebraska Medical Center, J Engle, M Dempsey, S Francesconi, R Crawford.
6. April 2006: Patrick AFB, Fla, Sponsor program-wide meeting, R Crawford, J Hanson, P Kennedy, E Kurrle, J Jay.
7. May 2006: San Antonio,Tex, Critical Reagents Program Symposium (CRP) ,R Crawford, P Kennedy, V Marcel, K Wahowski, E LaMorena, H St Joh.
8. May 2006: Patrick AFB, Fla, Conference with biodefense sponsor, M Chrustowski, E Kurrle, J Jay, R Crawford, J Hanson, P Kennedy.
9. May/June 2006: Tashkent and desert field expedition site in Uzbekistan, Collaborative research at natural plague, tularemia, and anthrax foci, S Francesconi, E Wallace.
10. October 2006: Lexington, Ky, 9th International Symposium on Yersinia, S Francesconi.
11. October/November 2006, Woods Hole, Mass: Fifth International Conference on Tularemia.
12. November 2006: Patrick AFB, Fla, Attended Sponsor kick-off meeting for 2007 SOW, R Crawford, J Hanson, S Francesconi, P Kennedy, J Jay, M Sharkey.
13. December 2006: Rockville, Md, Site visit to the Institute for Genomic Research (TIGR), discuss possible collaboration on future projects, M Chrustowski, P Kennedy, J Hanson, K Patel.
14. December 2006: Durham, NC, Richard West, President and CEO of Advanced Liquid Logic, Inc., Discuss possible collaboration on hand held device for detection of biothreat agents, K Patel.
15. December 2006: Tashkent, Uzbekistan, Laboratory training on specialized equipment and techniques, S Francesconi, E Wallace.
16. December 2006: NIH, Bethesda, Md, Nanogen presentation, J Engle, B Zhang.

DIVISION OF MOLECULAR PATHOBIOLOGY



Shyh-Ching Lo, MD, PhD
Chief
Date of Appointment — 2 May 1991

STAFF

Medical

Shyh-Ching Lo, MD, PhD, Division Chief

Scientific

Shaw-Huey Feng, PhD, Immunologist/Scientist, ARP
Hyung-Yong, Kim, PhD, Research Scientist, ARP
Bing-Jie Li, MD, Molecular Microbiologist, ARP
Tamara Newsome, MS, Research Microbiologist, ARP*
José Rodriguez, Research Technician, ARP
Shien Tsai, PhD, Senior Research Scientist, ARP
Shimin Zhang, MD, PhD, Senior Research Scientist, ARP
Nianxiang Zou, PhD, Research Scientist, ARP

* Replaced by Hong Ge, MD, PhD, Research Scientist, ARP

IMPACT

1. We continued to develop and characterize monoclonal antibodies that could differentiate between closely related *Burkholderia pseudomallei* and *Burkholderia mallei* and from other non-pathogenic Burkholderia bacteria.
2. We have published the study results of monoclonal antibodies obtained against *Burkholderia pseudomallei* and *Burkholderia mallei*.
3. The laboratory published the results of a microarray study documenting mycoplasmal effects on the alteration of global gene expression in infected mammalian cells.
4. We have prepared more mouse ascitic fluids monoclonal antibodies that could specifically recognize bacteria with major biothreat concerns - Bacillus anthracis, *Yersinia pestis* and *Francisella tularensis*. These reagents are critical in diagnosis or detection of infections by these biothreat agents.
5. We have successfully isolated more members, from phage-displayed combinatorial human single-chain antibody (scFv) libraries, specifically recognize complex whole cell antigens of Burkholderia bacteria.
6. We have submitted the study results of developing human single-chain antibody (scFv) monoclonal antibodies against Burkholderia pseudomallei and Burkholderia mallei. The paper is accepted for publication.
7. We have conducted many important preliminary studies on developing human monoclonal monoclonal antibodies against various viral agents by directly immortalizing human B memory cells in the peripheral blood. This is a highly innovative approach of developing valuable human monoclonal antibodies.
8. We have been preparing our study results on chronic infections with mycoplasmas markedly enhance transcriptional function of steroid receptors for publication.
9. Our laboratory has continued to study other unknown factors that may affect the disease progress of chronic debilitating illnesses of human, including AIDS.

MISSION

The Division of Molecular Pathobiology provides consultation services to the AFIP, other federal agencies, civilian institutions, clinicians, and research scientists on the pathology of

unusual infections, especially by mycoplasmas, chlamydias, and viruses. The Division provides consultation on electron-microscopic diagnosis and studies of bacteria, viruses, and mycoplasmas, on various disease processes related to infections by microorganisms, and on molecular techniques in diagnosis and research. The laboratory of the Division also conducts molecular studies of the submitted cases needed for microbial identification and speciation by amplifying the highly conserved ribosomal sequences from the genetic material retrieved from the paraffin-blocks followed by sequencing. The molecular study information could often complement histopathology findings for the final consultation report.

The Division has expanded its service to the military beginning in 2003 through its efforts for the Department of Homeland Security and the Defense Threat Reduction Agency (DTRA) of DoD. Both the military and Homeland Security urgently need reagents to rapidly detect and differentiate biowarfare agents, specific antibodies for human therapeutic use, and vaccines against these agents of biothreat. The Division has been preparing from mouse ascitic fluids monoclonal antibodies that could specifically recognize Bacillus anthracis, *Yersinia pestis*, and *Francisella tularensis*. In addition, the Division has developed a series of monoclonal antibodies that could differentiate between closely related 2 Category B priority pathogens of biothreat, *Burkholderia pseudomallei* and *Burkholderia mallei*, and from other nonpathogenic Burkholderia bacteria. The laboratory under the Division has been using phage-displayed combinatorial human single chain antibody (scFv) libraries to develop human monoclonal antibodies against complex antigens, specifically whole Burkholderia bacteria antigens. This represents a new approach in the development of monoclonal antibodies, based on the conformation (shape and charge) of protein antigens. Moreover, the Division is actively developing human monoclonal antibodies against pox viruses as potential therapeutics in human. Both the projects of developing monoclonal antibodies specific to pathogenic Burkholderia bacteria and pox viruses are supported by grants from the DTRA. The laboratory continues to study the AIDS-associated mycoplasmas originally discovered in this laboratory and continues to search for the unusual microbes as potential etiologic agents of various human chronic illnesses.

The Division supports the AFIP's educational program by providing lectures, courses, and training for visiting scientists, fellows, and students. The scientists of the Division present their scientific findings at the National and International Conferences. The Division also actively participates in scientific education and training for high school and college students in every summer.

CONSULTATION

Presentations and Studies

In addition to consultation support in electron microscopic and immunohistochemical diagnosis of unusual microbes for the Institute, division staff conduct molecular studies by amplifying ribosomal genes of bacteria and fungi for molecular identification and speciation. All consultations rendered by this division are reported with the Division of Infectious and Tropical Diseases Pathology.

EDUCATION

Presentations and Seminars

Division staff gave 2 presentations in 2006, for a total of 100 man-hours. The division trained 3 high students in the AFIP summer program.

1. April 2006: AFIP, Washington, DC, Staff conference, "Nucleotide therapeutics: a new class of drugs in treatment against various human diseases," S-C Lo.
2. May 2006: Orlando, Fla, American Society for Microbiology 106th General Meeting, "Effect of mycoplasmas on apoptosis of 32D cells is species-dependent," S Zhang, S-C Lo.

RESEARCH

Publications

Division staff published 5 articles in 2006. Two additional papers are accepted for publication (in Press).

Journal Articles

1. Feng S-H, Tsai S, Rodriguez J, Newsome T, Emanuel P, Lo S-C. Development of mouse hybridomas for production of monoclonal antibodies specific to Burkholderia mallei and Burkholderia pseudomallei. *Hybridom*a. 2006;25(4):193-201.
2. Zhang S, Tsai S, Lo S-C. Alteration of gene expression profiles during Mycoplasma-induced

malignant cell transformation. *BMC Cancer*. 2006; 6(1):116.
3. Chu WS, Liang K, Tang Y, King R, Wong K, Gong M, Wei M, Liu J, Feng SH, Lo S-C, Andriko J-A, Orr M. Ultrasound-accelerated tissue fixation/processing achieves superior morphology and macromolecule integrity with storage stability. *J Histochem Cytochem*. 2006;54(5):503-513.
4. Li Z, Chen Y, Cao D, Wang Y, Chen G, Zhang S, Lu J. Glucocorticoid up-regulates transforming growth factor-{beta} (TGF-{beta}) Type II receptor and enhances TGF-{beta} signaling in human prostate cancer PC-3 cells. *Endocrinology*. 2006;147(11):5259-5267.
5. Zhang S, Danielsen M. Evidence denies the presence of O-GlcNAcylation on mouse glucocorticoid receptor and its potential involvement in receptor transcriptional activity. *J Receptors and Signal Transduction*. 2006;26:129-145.

Projects

1. Production of mouse ascitic fluid with monoclonal antibodies specifically against various biological warfare agents. (UBWA)
2. Effect of mycoplasmas on steroid receptor functions. (UBUY)
3. Development of Mabs as therapeutics against Burkholderia pseudomallei and Burkholderia mallei. (UB5O)
4. Mycoplasmal infection and immortalization of human peripheral blood mononuclear cells. (UBIM)

Summary of Research Program. Thru 2006:

1. The laboratory continued to develop and characterize specific monoclonal antibodies to *Burkholderia pseudomallei* and *Burkholderia mallei*, category B biological warfare agents (A 3-year project supported by DTRA).
2. The laboratory developed techniques of screening phage-displayed combinatorial human single-chain antibody (scFv) libraries against complex whole bacteria antigens of *B. pseudomallei* and *B. mallei*.
3. We continued to prepare monoclonal antibodies from mouse ascitic fluids for detection and diagnosis of infections of Bacillus anthracis, Yersinia pestis and Francisella tularensis.
4. The laboratory published the study results of developing monoclonal antibodies that can differentiate pathogenic and non-pathogenic Burkoholderia sp.
5. The laboratory published the results of a microarray study documenting mycoplasmal effects on the alteration of global gene expression in infected mammalian cells.
6. The laboratory submitted the study results of developing specific human monoclonal antibodies to pathogenic *Burkholderia mallei* and *Burkholderia pseudomallei* using an innovative scFv library technique. The paper is in press.
7. The laboratory continues to develop in vitro assays to compare inhibitory and killing effects against bacteria by specific monoclonal antibodies evaluated as the potential therapeutic reagents against infections of the target bacteria.
8. We successfully secure the continuing support (the 3rd year) of an external grant support to develop therapeutic monoclonal antibodies against pathogenic *Burkholderia mallei* and *Burkholderia pseudomallei*.
9. We continued to actively pursue external research grants by submitting 6 grant applications to the Medical Chemical and Biological Defense Science and Technology Program of the US Army Research and Material Command and successfully secure a 2nd project of developing human monoclonal antibodies against pox viruses.
10. The laboratory has initiated preliminary studies on development of human monoclonal antibodies against various viral agents by directly immortalizing human B memory cells in the peripheral blood.
11. The laboratory continues to conduct molecular studies of the submitted cases needed for microbial identification and speciation by amplifying the highly conserved ribosomal sequences from the genetic material retrieved from the paraffin-blocks followed by sequencing.
12. Our laboratory continued to develop and assess highly sensitive and specific techniques to identify and clone genetic materials of previously unknown organisms that fail to grow in our current culture systems.

Collaborators

Military
Naval Medical Research Institute, Silver Spring, Md

Civilian
Clinical Center, National Institutes of Health, Bethesda, Md

Committees (Intramural)

Shimin Zhang:
1. AFIP safety committee (Radiation Protection Officer)
2. Member of the Radiation Safety Control Committee
3. Member of the Safety Committee of Armed Forces Institute of Pathology
4. Walter Reed Army Medical Center radiation control committee
5. AFIP Library Committee

Committees (Extramural)

Shyh-Ching Lo:
Member, Institutional Biosafety Committee (IBC), Walter Reed Army Medical Center, Washington, DC.

Editorial Board

Methods in Cell Science, Shyh-Ching Lo

DIVISION OF AIDS PATHOLOGY AND EMERGING INFECTIOUS DISEASE

Ann M. Nelson, MD,
Chief
Date of Appointment — 2004

STAFF

Medical

Ann M. Nelson, MD

IMPACT

The Division of AIDS Pathology and Emerging Infectious Diseases supports the United States Department of Defense and serves the American people by providing medical expertise in HIV-related and emerging infections in diagnostic consultation, education, and research to enhance the health and well-being of the people we serve.

CONSULTATION

The division has developed the world's largest repository (>7,000 cases) of the pathology of HIV infection and AIDS. The collection dates back to the 1970s and includes material for original cases reported to the CDC, and autopsy, surgical, and cytology material from the US, Africa, Central and South America, Europe, and Asia. Material from the repository has been used for 2 books and courses on the pathology of emerging infections and for contributions to the NCI HIV-malignancy bank.

Cases	*Completed*
Military	7
Army (6)	
Navy (1)	
Federal	60
VA (60)	
Civilian	24
Interdepartmental	16
Total	107

EDUCATION

Trainees

The Division hosted a Public Health Service Pathologist, 1 Red Cross Volunteer and 1 high school summer student.

Presentations

1. February 2006: Bethesda, Md, NIH Clinical Center, "The pathologist's view of the immunology of HIV," AM Nelson.
2. February 2006: Atlanta, Ga, USCAP "AIDS in the era of HAART," AM Nelson.
3. March 2006: George Washington University School of Medicine, "The pathology of antiretroviral therapy," AM Nelson.
4. April 2006: Duke University School of Medicine, "Review of infectious disease pathology," AM Nelson.

5. June 2006: Duke University School of Medicine, "Review of infectious disease pathology," AM Nelson.
6. July 2006: Baltimore, Md, The Johns Hopkins School of Public Health Course, "AIDS pathology," AM Nelson.
7 August 2006: Washington DC, AFIP VTC Grand Rounds, "Infections in immigrants and returning travelers," AM Nelson.
8. September 2006: Burlington, VT, University of Vermont, "AIDS in the era of HAART," AM Nelson.
9. November 2006: Duke University School of Medicine, "Review of infectious disease pathology," AM Nelson.

RESEARCH

Publications

Journal Article

Hofman P, Nelson AM. The pathology induced by highly active antiretroviral therapy against human immunodeficiency virus: an update. *Current Medicinal Chemistry*.2006;13:3121-3132.

Abstracts

1. Nelson AM. The pathology of antiretroviral therapy. *Mod Pathol*. 2006(Sep);19(Suppl 3):129, Abstract 592.
2. Nelson AM, Man Y-G. Mast cells in HG lesions of patients co-infected with Human Papilloma Virus (HPV) and Human Immunodeficiency Virus (HIV). *Lab Invest.* 2006(Jan);86(Suppl 1):257A, Abstract 1190.

Collaborators

Military

Division of Experimental Therapeutics, Walter Reed Army Institute of Research.

Civilian

1. SNOMED International, College of American Pathologists
2. HealthNet, Satellife
3. International Pathology and Laboratory Medicine Initiative

PROFESSIONAL ACTIVITIES

Official Trips

1. February 2006: Tampa, Fla, American Board of Pathology, AM Nelson.
2. February 2006: Atlanta, Ga, USCAP, AM Nelson.
3. May 2006: Washington DC, Global Health Council, AM Nelson.
4. June 2006: Atlanta, Ga, SNOMED Anatomic Pathology Group, AM Nelson.
5. September 2006: Montreal, Quebec, Canada, IAO, AM Nelson.
6. December 2006: Chicago, Ill, ASCP Institute Advisory Group, AM Nelson.

Editorial Boards.

1. *Clinical Infectious Diseases*, Histopathology Editor, Reviewed photomicrographs for various articles, AM Nelson.
2. Reviewed 5 articles for various journals. AM Nelson.
3. *Pathology – Research and Practice*, Editorial Board 2002-present, AM Nelson.
4. *Global Health Council,* reviewed abstracts.

Honors

1. Semifinalist, Robert Wood Johnson/IOM Health Policy Fellowship, AM Nelson.
2. President, History of Pathology Society, AM Nelson.

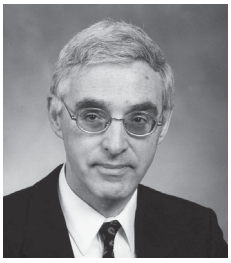
ADVANCED PATHOLOGY

GROUP 4

Hepatic & Gastrointestinal Pathology

Pulmonary & Mediastinal Pathology

Zachary D. Goodman, MD, PhD
Co-Chair
Date of Appointment — May 2004



Leslie H. Sobin, MD, SES
Co-Chair
Date of Appointment — May 2004

DEPARTMENT OF HEPATIC AND GASTROINTESTINAL PATHOLOGY

DIVISION OF HEPATIC PATHOLOGY

Zachary D. Goodman, MD, PhD
Chief
Date of Appointment – 1 January 1991

STAFF

Medical

Zachary D. Goodman, MD, PhD, Chief
Lionel Rabin, MD, Staff Pathologist
Anupamjit K. Mehrotra, MD, Staff Pathologist
Hala Makhlouf, MD, PhD, Research Staff Pathologist, ARP
(A) Janet Shaw, Lt Col, USAF, MC, Staff Pathologist
(D) Michael Armstrong, COL, MC, USA, Staff Pathologist
(D) Douglas Grider, Lt Col, USAF, MC
(A) Prakash Jha, MD, Research Fellow
(D) Guanghua Wang, MD, Research Fellow
(A) Zhiping Liu, MD, Callender-Binford Fellow
(D) Georgeta Giblen, MD, Callender-Binford Fellow

Scientific

(A) Jiaqiang Wu, Director of Morphometry Laboratory, ARP(D) Michelle Parks, Director of Morphometry Laboratory, ARP
Hala Abdul-Al, MD, PhD, Research Associate

Administrative

Fanny X. Revelo, Administrative Officer
Tara Butler, Office Assistant

IMPACT

In 2006 the division continued its tradition of collaboration with other federal agencies, academic medical centers, and industry to maximize our impact on the medical community. Participation in multicenter clinical trials sponsored by NIH and pharmaceutical companies has led to ever-increasing numbers of fruitful collaborations and publications, and has provided funding for intramural research. In education, the annual Hepatic Pathology Course was again highly successful, and members of the staff are frequently invited to speak at

national and international meetings. The continuing flow of cases submitted for consultation shows that the division's reputation for diagnostic expertise remains undiminished.

CONSULTATION

Cases	*Completed*
Military	459
Army (235)	
Navy (117)	
Air Force (107)	
Federal	622
VA (617)	
USPH (5)	
Civilian	783
Interdepartmental	64
Total	1,928

Most cases submitted to the division pose diagnostic problems for the contributing pathologist, particularly those that deal with medical diseases of the liver, such as chronic cholestatic disorders and steatohepatitis. Neoplasms represent only about 20% of consultation material. The number military cases increased by 9% from 2005, while civilian cases declined by 9% and VA and other federal cases declined by 1%. Overall, there were 2% fewer extramural consultations than in 2005 (1,864 vs 1,908 cases).

EDUCATION

Courses

Members of the division participated in 3 non-AFIP courses, 1 nondepartmental AFIP course, and the 26th Annual Course in Hepatopathology, attended by 106 participants for 318 training days.

Departmental Conferences

Division staff conducted daily microscopic pathology conferences for the staff and rotating fellows and residents.

Trainees

The division provided training to 32 civilian and military pathologists and gastroenterology fellows, for a total of 1,231 training days.

Faculty Appointments

1. Clinical Professor, USUHS, ZD Goodman.
2. Adjunct Associate Professor, Georgetown University, ZD Goodman.
3. Adjunct Professor, Temple University, Philadelphia, Pa, L Rabin.
4. Professor, Ain Shams University School of Medicine, Cairo, Egypt, HR Makhlouf.

Committees (Intramural):

AFIP Credentials Committee, L Rabin

Presentations

1. January 2006: Washington, DC, WRAMC, Department of Pathology, "Neoplasms of the Liver," ZD Goodman.
2. February 2006: Atlanta, Ga, Long course at the annual meeting of US and Canadian Academy of Pathology, "Neoplasms of the liver," Pathology of the liver and pancreas," ZD Goodman.
3. February 2006: Washington, DC, AFIP Weekly Professional Staff Conference, "Neoplasms of the liver," ZD Goodman.
4. March 2006: Washington, DC, Washington VA Medical Center, Division of Gastroenterology, "Patterns of injury in liver disease," ZD Goodman.
5. March 2006: Washington, DC, Sophomore Pathology Course, Georgetown University School of Medicine, "Introduction to liver disease" (4 lectures), ZD Goodman.
6. March 2006: Rockville, Md, "Diseases of the liver," AFIP course, "Anatomic pathology review and update," ZD Goodman.

7. April 2006: Bethesda Md, "Liver histology in chronic hepatitis B," Management of chronic Hepatitis B: 2006, symposium sponsored by National Institutes of Health (NIDDK), Hepatitis B Foundation, Hepatitis Foundation International, American Liver Foundation, American Association for the Study of Liver Diseases, ZD Goodman.
8. June 2006: Washington, DC, Georgetown University School of Medicine, Department of Pathology, "Tumors of the liver," ZD Goodman.
9. September 2006: Bethesda, Md, AFIP/ARP Hepatopathology Course, "Introduction to liver pathology," "Biopsy diagnosis of hepatitis," "Biopsy diagnosis of cholestatic liver disease," "Drug-induced liver disease," ZD Goodman.
10. September 2006: Bethesda, Md, AFIP/ARP Hepatopathology Course, "Iron overload diseases," DJ Grider.
11. September 2006: Bethesda, Md, AFIP/ARP Hepatopathology Course, "Fibrosis, cirrhosis and pre-neoplastic lesions," HR Makhlouf.
12. September 2006: Bethesda, Md, AFIP/ARP Hepatopathology Course, "Tumors of the liver," AK Mehrotra.
13. September 2006: Bethesda, Md, AFIP/ARP Hepatopathology Course, "Representative cases," L Rabin.
14. September 2006: Jackson Hole, Wyo, "Hepatic pathology in HIV and the role of liver biopsy vs. noninvasive markers of fibrosis," "HIV & liver disease 2006," sponsored by the University of Cincinnati, ZD Goodman.
15. September 2006: Alexandria, Va, "Liver histopathology," "Board Review in Gastroenterology," sponsored by Washington Hospital Center, ZD Goodman.
16. September 2006: San Juan, Puerto Rico, 8th Ana G. Mendes Health Symposium on Hepatitis and Infectious Diseases, sponsored by Ana G. Mendez University System and Cleveland Clinic, "Liver Biopsy and the evaluation of hepatic fibrosis," ZD Goodman.
17. October 2006: Washington, DC, AFIP Videoteleconference, "Neoplasms of the liver – hepatocellular carcinoma and cholangiocarcinoma," ZD Goodman.
18. October 2006: Washington, DC, George Washington University, Department of Pathology, "Patterns of injury in liver disease," ZD Goodman.
19. October 2006: Boston, Mass, Annual meeting of the American Association for the Study of Liver Diseases, "Pathology of chronic hepatitis C in children: liver biopsy findings in the Peds-C Trial," ZD Goodman.
20. November 2006: Casablanca, Morocco, the 18th Congress of the IAP Arab Division, "The Kamal Ishak Lecture: Drug-induced and toxic liver disease: principles of diagnosis," ZD Goodman.
21. November 2006: Casablanca, Morocco, the 18th Congress of the IAP Arab Division, "Diseases of the Liver: A Slide Seminar," ZD Goodman, HR Makhlouf.
22. November 2006: Richmond, Va, Virginia Society for Pathology Fall Seminar, "Hepatitis in the 21st century," "Fatty liver disease: current status," "Cholestatic liver disease," ZD Goodman.

RESEARCH

Journal Articles

1. Harrison SA, Brunt EM, Goodman ZD, Di Biscelie AM. Diabetic hepatosclerosis: Diabetic microangiopathy of the liver. *Arch Pathol Lab Med*. 2006;130:27-32.
2. Chang TT, Gish RG, de Man R, Gadano A, Sollano J, Chao YC, Lok AS, Han KH, Goodman Z, Zhu J, Cross A, DeHertogh D, Wilber R, Colonno R, Apelian D. BEHoLD AI463022 Study Group: A comparison of entecavir and lamivudine for HBeAg-positive chronic hepatitis B. *N Engl J Med*. 2006;354:1001-1010.
3. Lai CL, Shouval D, Lok AS, Chang TT, Cheinquer H, Goodman Z, DeHertogh D, Wilber R, Zink RC, Cross A, Colonno R, Fernandes L. BEHoLD AI463027 Study Group: Entecavir versus lamivudine for patients with HBeAg-negative chronic hepatitis B. *N Engl J Med*. 2006;354:1011-1020.
4. Albores-Saavedra J, Grider DJ, Wu J, Henson DE, Goodman ZD. Giant cell tumor of the extrahepatic biliary tree: a clinicopathologic study of 4 cases and comparison with anaplastic spindle and giant cell carcinoma with osteoclast-like giant cells. *Am J Surg Pathol*. 2006;30:495-500.
5. Sherman M, Yurdaydin C, Sollano J, Silva M, Liaw YF, Cianciara J, Boron-Kaczmarska A, Martin P, Goodman Z, Colonno R, Cross A, Denisky G, Kreter B, Hindes R. Entecavir for treatment of Lamivudine-refractory, HBeAg-positive chronic hepatitis B. *Gastroenterology*.

2006;130:2039-2049.

6. Baranova A, Gowder SJ, Schlauch K, Elariny H, Collantes R, Afendy A, Ong JP, Goodman Z, Chandhoke V, Younossi ZM. Gene expression of leptin, resistin, and adiponectin in the white adipose tissue of obese patients with non-alcoholic fatty liver disease and insulin resistance. *Obes Surg*. 2006;16:1118-1125.
7. Hadziyannis SJ, Tassopoulos NC, Heathcote EJ, Chang TT, Kitis G, Rizzetto M, Marcellin P, Lim SG, Goodman Z, Ma J, Brosgart CL, Borroto-Esoda K, Arterburn S, Chuck SL. Adefovir Dipivoxil 438 Study Group: Long-term therapy with Adefovir Dipivoxil for HBeAg-negative chronic hepatitis B for up to 5 years. *Gastroenterology*. 2006;131:1743-1751.

Abstracts

1. Albores-Saavedra J, Grider DJ, Wu J, Henson DE, Goodman ZD. Giant cell tumor of the extrahepatic biliary tree: a clinicopathologic study of four cases and comparison with anaplastic spindle and giant cell carcinomas with osteoclast-like giant cells. *Modern Pathol*. 2006;19:267A.
2. Calvert VS, Collantes R, Elariny H, Baranova A, Afendy A, Goodman Z, Liotta LA, Petricoin EF, Younossi Z. Signal pathway proteomic analysis of human adipose tissue using phosphoprotein arrays: insights into the pathophysiology of nonalcoholic fatty liver disease (NAFLD) and type 2 diabetes (DM). *Gastroenterology*. 2006;130 (Suppl 2):A-762.
3. Sherman KE, Goodman ZD, Sullivan ST, Faris-Young S. Diagnostic liver biopsy in patients with advanced fibrosis and cirrhosis. *Gastroenterology*. 2006;130 (Suppl 2):A-770.
4. Shiffman ML, Goodman Z, Pockros JP, Boyer TD, Sherman M, Batur Y, Boron-Kaczmarska A, Vaughan J, Hindes RG. Entecavir (ETV) is associated with an improvement in liver histology and a reduction in HBV DNA in patients with lamivudine-refractory HBeAg(+) regardless of baseline characteristics. *Gastroenterology*. 2006;130 (Suppl 2):A-846.
5. Hadziyannis S, Tassopoulos N, Chang TT, Heathcote EJ, Kitis G, Rizzetto M, Marcellin P, Lim SG, Goodman Z, Arterburn S, Ma J, Borroto-Esoda K, Mondou E, Chuck S. Two-state modeling of virological and biochemical efficacy plus liver biopsies demonstrate efficacy of adefovir dipivoxil in HBeAg-negative chronic hepatitis B over four or five years. *J Hepatol*. 2006;44:S184.
6. Yurdaydin C, Senturk H, Boron-Kaczmarska A, RaptopouI-Gigi M, Bantur Y, Goodman Z, Vaughan J, Brett-Smith H, Hirdes R. Entecavir (ETV) demonstrates consistent responses throughout baseline disease and demographic subgroups for the treatment of lamivudine-refractory HBeAg(+) patients with chronic hepatitis B. *J Hepatol*. 2006;44:S190.
7. Simsek H, Schiff E, Goodman Z, Brett-Smith H, Klesczewski K, Kreter B. Effects of entecavir and lamivudine on advanced liver fibrosis after 48 weeks of treatment in patients with CHB infection: results of three pivotal trials. *J Hepatol*. 2006;44:S191.
8. Collantes R, Baranova A, Schlauch K, Gowder S, Del Giacco L, Elariny H, Van Meter A, Afendy A, Ong JP, Goodman Z, Chandhoke V, Younossi ZM. Gene expression in hepatic and white adipose tissues of patients with obesity-related non-alcoholic steatohepatitis (NASH). *J Hepatol*. 2006;44:S266.
9. Goodman Z, Makhlouf H, Liu L, Balistreri W, Gonzalez-Peralta R, Haber B, Jonas M, Mohan P, Molleston J, Murray KF, Narkewicz M, Rosenthal P, Smith L, Schwarz KB. Pathology of Chronic Hepatitis C in Children: Liver biopsy findings in the Peds-C trial. *Hepatology*. 2006;44 (Suppl 1):207A.
10. Calvert VS, Collantes RS, Elhariny H, Afendy A, Baranova A, Mendoza M. Goodman Z, Liotta LA, Petricoin EF, Yonossi ZM. Insight into the spectrum of non-alcoholic fatty liver disease (NAFLD) using phosphoproteomic array analysis of intracellular signaling from human adipose tissue. *Hepatology*. 2006;44 (Suppl 1):214A.

Book Chapter

Goodman ZD, Makhlouf HR. Hepatic histopathology. In: Schiff ER, Sorrell MF, Maddrey WC, eds. *Schiff's Diseases of the Liver*, 10th edition. Philadelphia: Lippincott Williams & Wilkins;2006:69-134.

Projects

1. The HALT-C Trial: a randomized controlled trial to evaluate the safety and efficacy of long-term peginterferon alfa-2a for treatment of chronic hepatitis C in patients who failed to respond to previous interferon therapy.

2. Morphometric analysis of progression of fibrosis in advanced chronic hepatitis C.
3. Evaluation of liver histology in clinical trials of entecavir for treatment of chronic hepatitis B infection.
4. Evaluation of liver histology in clinical trials of telbivudine for treatment of chronic hepatitis B infection.
5. Evaluation of liver histology in the PEDS-C Trial: pegylated interferon +/- ribavirin for children with hepatitis C.
6. Evaluation of liver histology in a multicenter study of the epidemiology of nonalcoholic fatty liver disease (Epi-NAFL).
7. The role of STATS activation in interferon alpha-mediated signaling in hepatitis C patients.
8. Evaluation of liver histology in multicenter assessment of liver disease in persons with chronic hepatitis B and HIV infection in the era of highly active antiretroviral therapy.
9. Evaluation of liver histology in "Suppressive long-term management of hepatitis C virus (HCV) and HIV-1 coinfected subjects (SLAM-C)"
10. Evaluation of liver histology in clinical trials of the antifibrotic activity of GI262570 in chronic hepatitis C subjects with hepatic fibrosis who have failed prior antiviral therapy.

Collaborators

Military/Federal

NIH, NIDDK Liver Unit and NCI Laboratory of Pathology: HALT-C Trial.

Civilian (and Civilian/Military)

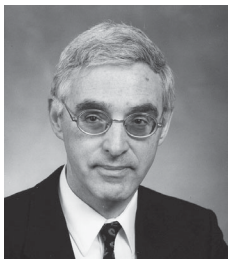
1. New England Research Institutes, University of Washington Laboratory of Virology, University of Massachusetts, Massachusetts General Hospital, St Louis University, University of Colorado, University of California at Irvine, University of Texas Southwestern, University of Southern California, University of Michigan, Medical College of Virginia Divisions of Gastroenterology/Hepatology and Departments of Pathology: HALT-C Trial.
2. Johns Hopkins University, University of Florida, Harvard University, University of Cincinnati, Georgetown University, Indiana University, Columbia University, University of California San Francisco, University of Pennsylvania, University of Washington: PEDS-C Trial.
3. Beth Israel Deaconess Medical Center (Harvard University), Division of Gastroenterology, and Intermune, Inc.: Progression of fibrosis in advanced chronic hepatitis C.
4. Bristol-Meyers Squibb Pharmaceutical Research Institute: Entecavir for treatment of chronic hepatitis B infection.
5. Idenix Pharmaceuticals: Telbivudine for treatment of chronic hepatitis B infection.
6. GlaxoSmithKline Company: GI262570 in chronic hepatitis C subjects with hepatic fibrosis who have failed prior antiviral therapy.
7. Inova Fairfax Hospital (Georgetown University) Center for Liver Disease: Multicenter study of the epidemiology of nonalcoholic fatty liver disease (Epi-NAFL).
8. Johns Hopkins University, Divisions of Gastroenterology and Infectious Diseases: Multicenter assessment of liver disease in persons with chronic hepatitis B and HIV infection in the era of highly active antiretroviral therapy.
9. University of Cincinnati and Massachusetts General Hospital (Harvard University): The SLAM-C Trial.

PROFESSIONAL ACTIVITIES

Editorial Board

Annals of Diagnostic Pathology, ZD Goodman.

DIVISION OF GASTROINTESTINAL PATHOLOGY



Leslie H. Sobin, MD, SES
Chief
Date of Appointment – 1 January 1991

STAFF

Medical

Leslie H. Sobin, MD, FRCPath, Chief; Director, Center for Scientific Publications
(D) Michael A. Armstrong, COL, MC, USA, Staff Pathologist
Nancy S. Dow, LTC, MC, USA, Staff Pathologist
(D) Douglas J. Grider, Lt Col, USAF, MC, Staff Pathologist
Anupamjit K. Mehrotra, MD, Staff Pathologist
(D) Georgeta Giblen, MD, Callender-Binford Fellow
(A) Zhiping Liu, MD, Callender-Binford Fellow
(A) Janet C. Shaw, Lt Col, USAF, MC, Staff Pathologist

Administrative

(D) Mayra E. Aguilera, Secretary, ARP
(A) Nawera Haque, Secretary, ARP

Visiting Scientist

(A, D) Tor Eide, MD

IMPACT

The division's impact was impressive. The education mission was highlighted by:

- publication of 1 book, 2 book chapters, 7 articles and 5 abstracts;
- 36 presentations;
- continued success of the highly acclaimed Annual Course on Endoscopic GI Tract Biopsies; the Virtual Gastrointestinal Endoscopic Biopsy Course, which provides CME credits; gastrointestinal lecture series for medical students at USUHS and Georgetown University;
- research collaborations with AFIP departments of Soft Tissue Pathology and Radiologic Pathology.

CONSULTATION

The total number of consultation cases was 0.1% greater than in 2005 with a 7.5% increase in military cases, a 7% increase in VA cases, and an 18% decrease in civilian cases.

Cases received represented primarily neoplastic and precancerous lesions, as well as inflammatory diseases. Among the relatively uncommon lesions that are unusually prominent in the division's accessions are carcinoids, gastrointestinal stromal tumors, lymphomas, appendiceal mucinous tumors, and surveillance biopsies for dysplasia in cases of ulcerative colitis and Barrett esophagus. The last of these is particularly frequent because of its diagnostic difficulties. Staff members also participate in the review of consultation cases in the Division of Hepatic Pathology. A GI radiology-pathology sign-out conference is held monthly.

Cases	*Completed*
Military	989
Army (385)	
Navy (244)	
Air Force (360)	
Federal	1,325
VA (1,320)	
USPHS (5)	
Civilian	756
Interdepartmental	152
Total	3,222

Trainees

The department provided training to 23 civilian and 9 military pathologists and gastroenterology fellows, for a total of 1,231 training days, a 3% increase over the preceding year.

EDUCATION

Conferences

A daily divisional conference is held to review all gastrointestinal cases accessioned within the previous 24 hours. The conference serves as the major educational forum and is part of the quality assurance program. A gastrointestinal radiology-pathology conference is held monthly. The staff also attends the daily hepatic pathology review conference and the weekly hepatic clinical-pathologic conference. A monthly gastroenterology pathology correlation conference is held at WRAMC with AFIP staff and members of the WRAMC/NNMC gastroenterology program.

Courses

Staff members participated in the following courses in 2006:

- 16th Annual Anatomic Pathology Review Course.
- 17th Annual Course on Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract, LH Sobin, Director.
- The Virtual Gastrointestinal Endoscopic Biopsy Course provides CME credit for 40 cases on the AFIP website, http://www.afip.org/Departments/edu/webed/vgi/hgss01/frameset3.html

Faculty Appointments

1. Professor of Pathology, USUHS, Bethesda, Md, LH Sobin.
2. Adjunct Professor of Pathology, Georgetown University Medical School, Washington, DC, LH Sobin.

Committees (Intramural):

1. Chair, Committee on Graduate Medical Education, LH Sobin.
2. Coordinator, WRAMC-AFIP Gastroenterology-Pathology Correlation Conference, N Dow.

Committees (Extramural):

LH Sobin:

1. Chair, TNM Prognostic Factors Project of the International Union Against Cancer.
2. Member, WHO Expert Advisory Panel on Cancer.

Presentations

1. January 2006: Washington, DC, WRAMC Pathology Department Conference (with video transmission to NNMC, Bethesda), "GI pathology unknowns," LH Sobin.
2. March 2006: Bethesda Md, 16th AFIP Anatomic Pathology course, "Pitfalls in the diagnosis of intestinal polyps," and "Gastrointestinal unknowns," LH Sobin.
3. March 2006: Washington, DC, Georgetown University Medical Center, Pathology Department Grand Rounds, "Pitfalls in the diagnosis of intestinal polyps," LH Sobin.
4. April 2006: Washington, DC, Georgetown University Medical College, "Pathology of the gastrointestinal tract" (6 lectures to second-year medical students), LH Sobin.
5. July 2006: Washington, DC, UICC World Cancer Congress, "TNM-7: Preview—hot topics and controversies, LH Sobin.
6. September 2006: Bethesda, Md, AFIP/ARP Course, Gastrointestinal surgical pathology and

Endoscopic biopsies of the gastrointestinal tract, 1)"Precancerous lesions of the GI tract and their imitators," 2) "Intestinal polyps, pitfalls in diagnosis," and 3) "Gastrointestinal unknowns," LH Sobin.

7. September 2006: Chicago, Ill, American Joint Committee on Cancer, Annual Meeting, 1) "TNM-7: Preview- revision topics and controversies," 2) "TNM-prognostic factors project: current status," LH Sobin.
8. October and November 2006: Bethesda, Md, Uniformed Services University of the Health Sciences, "Pathology of the gastrointestinal tract" (3 lectures to second-year medical students), LH Sobin.
9. November 2006: Washington, DC, George Washington University Medical Center, Department of Pathology Staff Lecture, "Precancerous lesions of the GI tract and their imitators," LH Sobin.
10. January 2006: Washington, DC, Walter Reed Army Medical Center Department of Pathology, "Gastrointestinal stromal tumors," NS Dow.
11. March 2006: Washington, DC, Walter Reed Army Medical Center, Monthly Gastroenterology-Pathology Correlation Conference, "Cases of the month: gastritis and gastropathy," NS Dow.
12. March 2006: Rockville, Md, 16th Annual Anatomic Pathology Review Course, "Dysplasia in Barrett esophagus," and "Gastritis, gastropathy, and gastric carcinoma," NS Dow.
13. April 2006: Washington, DC, AFIP Videoteleconference, "Gastrointestinal carcinoids," NS Dow.
14. May, 2006: Washington, DC, AFIP Professional Staff Conference, "Gastrointestinal carcinoids," NS Dow.
15. August 2006: Washington, DC, Walter Reed Army Medical Center, Monthly Gastroenterology-Pathology Correlation Conference, "Cases of the month: Gastritis, gastropathy, and gastric malignancy," NS Dow.
16. September 2006: Bethesda, Md, AFIP/ARP 17th Annual Review, Gastrointestinal Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract, "GI carcinoid tumors" and "GI stromal tumors: pitfalls in diagnosis," NS Dow.
17. January 2006: Washington, DC, WRAMC Pathology Department Conference (with video transmission to NNMC, Bethesda), "Non-neoplastic diseases of the lower gastrointestinal tract," AK Mehrotra.
18. January 2006: Washington, DC, WRAMC Clinico Pathologic Correlation Conference, "Review of normal histology and non-neoplastic diseases of lower gastrointestinal tract," AK Mehrotra.
19. March 2006: Bethesda Md, 16th AFIP Anatomic Pathology course, " Non neoplastic diseases of the lower gastrointestinal tract," AK Mehrotra.
20. April 2006, Washington, DC, Georgetown University Medical Center, Pathology Department Residents Lecture, "Esophagus: histology and spectrum of diseases," AK Mehrotra.
21. May 2006: Washington, DC, AFIP Staff Conference, "Sessile serrated adenoma-emerging questions and facts," AK Mehrotra.
22. June 2006: Washington, DC, Georgetown University Medical Center, Pathology Department Residents Lecture, "Stomach: histology and spectrum of diseases," AK Mehrotra.
23. August 2006: Washington, DC, Georgetown University Medical Center, Pathology Department Residents Lecture, "Small bowel: histology and spectrum of diseases," AK Mehrotra.
24. October 2006: Washington, DC, Georgetown University Medical Center, Pathology Department Residents Lecture, "Large bowel: histology and spectrum of diseases," AK Mehrotra.
25. December 2006: Washington, DC, Georgetown University Medical Center, Pathology Department Residents Lecture, "Overview of gastrointestinal diseases," AK Mehrotra.

RESEARCH

Journal Articles

1. Miettinen M, Fetsch JF, Sobin LH, Lasota J. Gastrointestinal stromal tumors in patients with neurofibromatosis 1: a clinicopathologic and molecular genetic study of 45 cases. *Am J Surg Pathol*. 2006;30(1):90-96.
2. Levy AD, Rimola J, Mehrotra AK, Sobin LH. Benign fibrous tumors and tumorlike lesions of the mesentery: radiologic-pathologic correlation. *RadioGraphics*. 2006; 26:246-264.
3. Brierley JD, Greene FL, Sobin LH, Wittekind C. The "y" symbol: an important classifica-

tion tool for neoadjuvant cancer treatment. *Cancer.* 2006;106:2526-2527.
4. Patel ND, Levy AD, Mehrotra AK, Sobin LH. Brunner gland hyperplasia and hamartoma: imaging features with clinicopathologic correlation. *Am J Radiol*. 2006; 187:715-722.
5. Miettinen M, Makhlouf H, Sobin LH, Lasota J. Gastrointestinal stromal tumors of the jejunum and ileum: a clinicopathologic, immunohistochemical, and molecular genetic study of 906 cases before imatinib with long-term follow-up. *Am J Surg Pathol*. 2006;30:477-489.
6. Dow N, Giblen G, Sobin LH, Miettinen M. Gastrointestinal stromal tumors: differential diagnosis. *Seminars Diag Pathol*. 2006;23:111-119.
7. Agaimy A, Wunsch PH, Sobin LH, Lasota J, Miettinen CM. Occurrence of other malignancies in patients with gastrointestinal stromal tumors. *Semin Diagn Pathol*. 2006;23:120-129.

Abstracts

1. Miettinen M, Makhlouf H, Sobin LH, Lasota J. Gastrointestinal stromal tumors (GISTs) of the jejunum and ileum: a clinicopathologic, immunohistochemical and molecular genetic study of 906 cases prior to imatinib with long-term follow-up. *Mod Pathol*. 2006;19:56A.
2. Koh E-S, Gospodarowicz M, O'Sullivan B, Benhamou-Borowski E, Brierley J, Denis L, Greene F, Groome P, Ngan HYS, Wittekind C, Yamasaki S, Sobin LH. Internet facilitating global cancer staging: expansion of the UICC-TNM Project Global Advisory Group. MedNet 2006.
3. Koh E-S, Gospodarowicz MK, O'Sullivan B, Benhamou-Borowski E, Brierley J, Denis J, Greene F, Groome P, Ngan HYS, Wittekind W, Yamasaki Y, Sobin LH. UICC TNM Project Global Advisory Group: progress and continued expansion. UICC World Cancer Congress, Washington DC, July 2006: abstract 13-2.
4. Koh E-S, Gospodarowicz MK, Groome PA, Keller S, Greene F, Ngan HYS, Wittekind C, Sobin LH. UICC TNM Project: International 'Panel of Experts': Goals and Development. 'UICC World Cancer Congress, Washington DC, July 2006: abstract 13-4
5. Sobin, LH. TNM-7: Preview- hot topics and controversies. 'UICC World Cancer Congress, Washington DC, July 2006: abstract 13-5

Book

Gospodarowicz MK, O'Sullivan B, Sobin LH, eds. *Prognostic Factors in Cancer*. 3rd ed. New York:Wiley;2006:353 pages.

Book Chapters

1. Sobin LH, Thompson LDR. TNM classification and consensus reporting of head and neck tumors. In: Thompson LDR (ed). *Head and Neck Pathology*. Philadelphia: Churchill Livingstone; 2006:594-603.
2. Sobin LH, Thompson LDR. TNM classification and consensus reporting of head and neck and endocrine organ tumors. In: Thompson LDR (ed). *Endocrine Pathology*. Philadelphia: Churchill Livingstone; 2006:359-363.

Projects

1. Gastrointestinal stromal tumors (GISTs), clinicopathologic studies.
2. Proliferation, apoptosis, microsatellite instability, and cell adhesion molecules in neoplasms of the colorectum and appendix.
3. Neurogenic tumors of the GI tract, clinicopathologic study.
4. Gastrointestinal stromal tumors, radiologic-pathologic correlations.
5. Benign fibrous tumors and tumor-like lesions of the mesentery: radiologic pathologic correlations.
6. Brunner gland lesions, radiologic pathologic correlations.
7. Peritoneal tumors, radiologic pathologic correlations.

Collaborators

Military/Federal

1. National Cancer Institute: Surveillance, Epidemiology, End Results (SEER) Program: International Classification of Diseases for Oncology and TNM/Prognostic Factors Classification and Cancer Staging.
2. CDC: TNM/Prognostic Factors Classification and Cancer Staging.

3. Naval Medical Center, San Diego: Differentiating primary gastric and colorectal signet ring cell carcinoma by mucin protein expression.
4. WRAMC, Division of Gastroenterology: Gastroenterolology-pathology correlation conference (monthly).

International

1. WHO: International Classification of Diseases for Oncology (ICD-O).
2. International Union Against Cancer (UICC): TNM/Prognostic Factors Classification and Cancer Staging.

PROFESSIONAL ACTIVITIES

Official Trips:

1. April 2006: International Association for the Study of Lung Cancer (IASLC) Staging meeting, Seattle, Wash, LH Sobin (IASLC).
2. May 2006: TNM Prognostic Factors Project Meeting, International Union Against Cancer (UICC), Geneva, Switzerland, LH Sobin (UICC).
3. July 2006: UICC World Cancer Congress, Washington, DC, LH Sobin (UICC).
4. September 2006: American Joint Committee on Cancer (AJCC), Annual meeting, Chicago, Ill, LH Sobin (American College of Surgeons).

Editorships

LH Sobin:

1. Associate Editor, AFIP Atlas of Tumor Pathology, 4th Series.
2. Associate Editor, AFIP/ARP Atlas of Nontumor Pathology.
3. Coeditor, Prognostic Factors in Cancer, 3rd edition.

Teri J. Franks, MD
Chair
Date of Appointment – 8 March 2005

DEPARTMENT OF PULMONARY & MEDIASTINAL PATHOLOGY

STAFF

Medical

Teri J. Franks, M.D.
Konstantin Shilo, M.D.
Dennis L. Hayden, COL, MC, USA
Negar Rassaei, M.D.
Allen Burke, MD (Visiting Scientist, University of Maryland)
Thomas Stocker, COL, MC, USA (Visiting Federal Scientist, USUHS)

Scientific

Fabio Tavora, MD, Callender-Binford Fellow, Pulmonary Pathology

Administrative:

Tammie Winters, Administrative Officer
Kim Jones, Administrative Assistant

IMPACT

The Department of Pulmonary and Mediastinal Pathology is one of the world's foremost authorities on thoracic pathology. We provided key leadership in the 2002 ATS/ERS Classification of Idiopathic Interstitial Pneumonias, and the 2004 World Health Organization Classification of Tumours, Pathology and Genetics: Tumours of the Lung, Pleura, Thymus and Heart, published by the International Association for Research on Cancer in Lyon, France. Our department played a key role in the diagnosis of acute eosinophilic pneumonia cases that were part of a cluster of cases of severe respiratory illness observed in active duty military personnel in the Southwest Asia theater of war. Dr. Franks developed the AFIP Hot Topic on Acute Eosinophilic Pnenumonia that was distributed on the Web and provides up-to-date information on diagnosis to military physicians in the Southwest Asia theater of war. We have continued to monitor lung pathology in military personnel and their dependents trying to obtain support from the Army Surgeon General and Department of Health Affairs for this work.

CONSULTATION

Approximately 60% of our consultation cases are tumors and about 40% are non-neoplastic thoracic disorders. We provide state of the art consultative work for pathologists worldwide in pulmonary, pleural, and mediastinal pathology, and work very closely with a world-class thoracic radiologist and pulmonologist to provide complete clinical-pathologic and radiologic consultation opinions. Our work is highly military relevant as our international stature achieved in the civilian realm is brought to bear on all of our military consultations.

Number of changes in contributor diagnoses in 2006: Our department made a minor change in diagnosis in 702 cases, a major change in diagnosis in 57 cases, and no change in the contributor diagnosis in 479 cases. We received 326 cases with no contributor diagnosis.

Cases	*Completed*
Military	275
Army (109)	
Navy (87)	
Air Force (79)	
Federal	676
VA (676)	
USPHS	58
Civilian	562
Interdepartmental	314
Total	1,885

EDUCATION

Presentations and Seminars: 12 total

Trainees

Our department is well recognized as an international center for training in pulmonary pathology. Our resources provide a unique opportunity for fellowship training, which is a major priority of the department. During 2006, we had 4 physicians rotate in the department from Walter Reed Army Medical Center, 1 from Howard University, 1 from Thomas Jefferson University, 1 from Washington Hospital Center, 1 from Stoney Brook University, NY, 1 from National Naval Medical Center, 1 from University of AZ, 1 from University of Maryland, 1 Red Cross Volunteer from Turkey, and 1 Red Cross Volunteer from India.

Educational Aids

Our department has one of the most extensive slide teaching collections in the world for pulmonary and mediastinal pathology cases. Over 5,500 cases are accessioned into this study set. Departmental fellows, staff, and visiting physicians are able to utilize this invaluable resource for education, teaching, and publications.

Presentations

Lectures

TJ Franks

1. February 2006: AFIP Staff Conference, Washington, DC, "Idiopathic interstitial pneumonia: the ATS/ERS classification."
2. February 2006: AFIP, Grand Rounds Video Teleconference, "Mediastinal pathology: a compartmental approach."
3. March 2006: AFIP, Rockville, Md, 16th Annual Anatomic Review Course, "Mediastinal pathology: a compartmental approach."
4. March 2006: AFIP, Rockville, Md, 16th Annual Anatomic Review Course, "Idiopathic interstitial pneumonia: radiologic pathologic correlation."
5. September 2006: XXVI International Congress, International Academy of Pathology, Montréal, Québec, Canada, "SARS: lung pathology and the differential diagnosis of Masson bodies," invited speaker.
6. October 2006: Howard University School of Medicine, Washington, DC, "Lung tumors: the WHO classification," visiting professor.
7. November 2006: Georgetown University School of Medicine, Washington, DC, "Idiopathic interstitial pneumonia: the ATS/ERS classification," visiting professor.
8. November 2006: Howard University School of Medicine, Washington, DC, "Idiopathic interstitial pneumonia: the ATS/ERS classification," visiting professor.
9. November 2006: Howard University School of Medicine, Washington, DC, "Mediastinal pathology: a compartmental approach," visiting professor.
10. December 2006: Infectious Disease Imaging Interest Group, National Institute of Allergy and Infectious Diseases/National Institutes of Health, Bethesda, Md, "Radiologic-pathologic correlation: anthrax, acute eosinophilic pneumonia, and SARS," invited speaker.

K Shilo

March 2006: Doubletree Hotel, Bethesda, Md, 16th Annual AFIP Anatomic Pathology Course, "Tumors of pleura."

DL Hayden
March 2006: Doubletree Hotel, Rockville, Md, 16th Annual AFIP Anatomic Pathology Course, "Tumors of the lung."

Panels

TJ Franks:
March 2006: Maryland Thoracic Society, 46th Annual Meeting and Scientific Session, Baltimore, Md, "Stump the professor: clinical case presentations."

Chaired/moderated sessions

TJ Franks
February 2006: 95th Annual Meeting, United States and Canadian Academy of Pathology, Atlanta, Ga, Proffered Papers in Pulmonary Pathology, Co-moderator.

Web-based Material

TJ Franks
1. Editor and Co-founder, Hot Topics Series (Web based modules on emerging diseases), Armed Forces Institute of Pathology, 5/2003-present. http://www.afip.org/hot-topics.html
2. Co-founder and Consultant for development, AskAFIP Online Database, Armed Forces Institute of Pathology, 9/2003-present. https://www.askafip.org

Monthly Conference

DL Hayden
Pulmonary pathology monthly conference for Pulmonary Medicine Fellows, Walter Reed Army Medical Center, 2001-present.

RESEARCH

Publications

Journal Articles

TJ Franks
1. Frazier AA, Franks TJ, Galvin JR. Inhalational anthrax. *J Thorac Imaging*. 2006;Nov;21(4):252-258.
2. Frazier AA, Franks TJ, Pugatch RD, Galvin JR. From the Archives of the AFIP: Primary pulmonary synovial sarcoma. *RadioGraphics*. 2006;26:923-940.
3. Fukuoka J, Dracheva T, Shih JH, Hewitt SM, Fujii T, Kishor A, Mann F, Shilo K, Franks TJ, Travis WD, Jen J. Desmoglein 3 as a prognostic factor in lung cancer. *Hum Pathol*. 2006; Nov 2; [Epub ahead of print].
4. Nishio Y, Nakanishi K, Ozeki Y, Jiang S, Kameya T, Hebisawa A, Mukai M, Travis WD, Franks TJ, Kawai T. Telomere length, telomerase activity, and expression of human telomerase mRNA component (hTERC) and human telomerase reverse transcriptase (hTERT) mRNA in pulmonary neuroendocrine tumors. *Jpn J Clin Oncol*. 2006; Oct 23; [Epub ahead of print].
5. Shilo K, Miettinen M, Travis WD, Timens W, Nogueira R, Franks TJ. Pulmonary microcystic fibromyxoma: report of three cases. Am J Surg Pathol. 2006;Nov;30(11):1432-1435.

K Shilo
1. Fukuoka J, Dracheva T, Shih JH, Hewitt SM, Fujii T, Kishor A, Shilo K, Franks TJ, Travis WD, Jen J. Desmoglein 3 as a prognostic factor in lung cancer. *Hum Pathol*. 2006; Nov 2; [Epub ahead of print].
2. Shilo K, Miettinen M, Travis WD, Timens W, Nogueira R, Franks TJ. Pulmonary microcystic fibromyxoma: report of three cases. *Am J Surg Pathol*. 2006 Nov;30(11):1432-1435.

Abstracts

TJ Franks
1. Boroumand N, Franks TJ, Klimstra DS, Zakowski MF, Moreira AL, Shilo K, Travis WD. Diffuse pulmonary neuroendocrine (NE) cell hyperplasia, tumorlets and carcinoid tumors: a clinicopathologic study of 22 cases. *Mod Pathol*. 2006;19(Suppl 1):303A.
2. Galvin JR, Franks TJ, Frazier AA. Pulmonary capillary hemangiomatosis and pulmonary veno-occlusive disease: separate diseases or related injury. Fleischner Society, Krems, Austria, June 18-22, 2006.
3. Travis WD, Franks TJ, Brambilla E, Hasleton PS, K Shilo K, Fukuoka J. Neuroendocrine (NE)

lung tumors: a clinicopathologic study of 515 cases. *Mod Pathol*. 2006;19(Suppl 1):318A.
4. Hartel PH, Fanburg-Smith JC, Lichy JH, Shilo K, Franks TJ. Primary pulmonary and mediastinal synovial sarcome (PPMSS): single institution study of 43 cases. *Mod Pathol*. 2006;19(Suppl 1):309A.
5. Shilo K, Fukuoka J, Mani H, Sesterhenn IA, Jen J, Travis WD, Franks TJ. Alpha-methylacyl CoA Racemase (AMACR) Expression in pulmonary carcinomas: a study of 426 cases. *Mod Pathol*. 2006;19(Suppl 1):316A.

K Shilo

1. Boroumand N, Franks TJ, Klimstra DS, Zakowski MF, Moreira AL, Shilo K, Travis WD: diffuse pulmonary neuroendocrine (NE) cell hyperplasia, tumorlets and carcinoid tumors: a clinicopathologic study of 22 cases. *Mod Pathol*. 2006;19:303A.
2. Hartel PH, Fanburg-Smith JC, Lichy JH, Shilo K, Franks TF: Primary pulmonary and mediastinal synovial sarcoma (PPMS): single institution study of 43 cases. *Mod Pathol*. 2006;19:309A.
3. Shilo K, Fukuoka J, Mani H, Sesterhenn IA, Jen J, Travis WD, Franks TJ: Alpha-methylacyl CoA racemase (AMACR) expression in pulmonary carcinomas: a study of 426 cases. *Mod Pathol*. 2006;19:316A.
4. Travis WD, Franks TJ, Brambilla E, Hasleton PS, Shilo K, Fukuoka J: Neuroendocrine (NE) lung tumors: a clinicopathologic study of 515 cases. *Mod Pathol*. 2006;19:318A.

Other Publications-Book Review

TJ Franks

Franks TJ. Thurlbeck's Pathology of the Lung. *N Engl J Med*. 2006;Mar 30;354(13):1435-1436.

Projects

In 2006 the department maintained 10 research protocols, as listed below:

1. Analysis of lung cancer using tissue microarray.
2. Neuroendocrine tumors of the lung.
3. Immunohistochemical Staining for p53, PDGF, and p16 antibodies in malignant mesotheliomas and atypical mesothelial hyperplasia.
4. Inflammatory pseudotumor of the lung: a clinicopathologic study of 75 cases.
5. Histologic analysis and immunohistochemical staining profile of pleuropulmonary blastoma.
6. ILD in military & veterans compared to civilian patients.
7. Correlation of pulmonary, mediastinal and pleural pathologic findings with radiologic studies.
8. Pulmonary and mediastinal synovial sarcoma: a clinicopathologic-radiologic study.
9. The possible presence of the SV40 virus in human mesothelioma prior to 1955.
10. Histologic and immunohistochemical analyses of localized fibrous tumor of the pleura: the establishment of objective criteria distinguishing the benign and malignant forms of the tumors.

Collaborators in research projects

Military/Federal

1. National Institutes of Health/National Heart Lung and Blood Institute: Lymphoangioleiomyomatosis and interstitial lung disease.
2. National Institutes of Health/Office of Rare Diseases: Hermansky-Pudlock syndrome.
3. National Institutes of Health/National Cancer Institute: Molecular biology of lung cancer.

Civilian

1. Brompton Hospital, London, England: Neuroendocrine lung tumors.
2. University of Grenoble, France: Molecular biology of lung cancer, neuroendocrine lung tumors.
3. Memorial Sloan Kettering Cancer Center, New York, NY: Neuroendocrine tumors.
4. Toyama University Hospital, Toyama, Japan: Neuroendocrine and non-small cell carcinoma.
5. University of Wurzburg, Wurzburg, Germany: Thymic neuroendocrine tumors
6. Mayo Clinic: Molecular biology of lung cancer, neuroendocrine lung tumors, interstitial lung disease.

7. University of Southern California, Los Angeles: Interstitial lung disease.
8. University of California, San Francisco: Interstitial lung disease.
9. University of Iowa: Interstitial lung disease.
10. University of Colorado: Interstitial lung disease.
11. Kyoto University, Kyoto, Japan: Interstitial lung disease.
12. University of Michigan, Ann Arbor, Mich: Interstitial lung disease.
13. Brigham and Women's Hospital, Boston, Mass: SV-40 virus.

PROFESSIONAL ACTIVITIES

Official Trips

TJ Franks

1. September 2006: XXVI International Congress, International Academy of Pathology, Montréal, Québec, Canada, "SARS: lung pathology and the differential diagnosis of Masson bodies," invited speaker.
2. October 2006: Howard University School of Medicine, Washington, DC, "Lung tumors: the WHO classification," visiting professor.
3. November 2006: Georgetown University School of Medicine, Washington, DC, "Idiopathic interstitial pneumonia: the ATS/ERS classification," visiting professor.
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6. December 2006: Infectious Disease Imaging Interest Group, National Institute of Allergy and Infectious Diseases/National Institutes of Health, Bethesda, Md, "Radiologic-pathologic correlation: anthrax, acute eosinophilic pneumonia, and SARS," invited speaker.

Editorial Boards

TJ Franks

1. United States and Canadian Academy of Pathology, abstract review board (2002 to present).
2. Archives of Pathology and Laboratory Medicine, editorial board (2005 to 2006).
3. Archives of Pathology and Laboratory Medicine, abstract review board (2006 to present).
4. Journal of Thoracic Imaging, editorial board (2006 to present).
5. Archives of Pathology and Laboratory Medicine, section editor (2006 to present).

Appointments Inside the AFIP

TJ Franks

1. Director, American Registry of Pathology/National Institutes of Health Pulmonary Pathology Fellowship Training Program, Armed Forces Institute of Pathology, Washington, DC (3/2005 to present).
2. Adjunct Assistant Professor of Medicine (Pulmonary and Critical Care Medicine Division), University of Maryland School of Medicine, Baltimore, Md (7/15/2005 to present).
3. Consultant, Pulmonary Pathology, Pulmonary and Critical Care Medicine Branch, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, Md (1/2006 to present).

Faculty and Clinical Staff Appointments Outside the AFIP

TJ Franks

1. Adjunct Assistant Professor of Medicine (Pulmonary and Critical Care Medicine Division), University of Maryland School of Medicine, Baltimore, Md (7/15/2005 to present).
2. Consultant, Pulmonary Pathology, Pulmonary and Critical Care Medicine Branch, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, Md (1/2006 to present).

K Shilo

Consultant, Laboratory of Population Genetics, National Cancer Institute, Bethesda, Md (01/2005-present).

Administrative Service-Intramural

Committees

TJ Franks

1. Oversight committee for continuing medical education, AFIP (4/2003 to present).
2. Advisory committee to the Director on Distance Learning Activity, AFIP (6/2003-present).
3. Information management support council, AFIP (10/2003 to present).
4. Task Force 8 Project Team – Database development for Distance Learning and Education, AFIP (3/2004 to present).
5. Graduate Medical Education Committee (2005 to present).

K Shilo

Research Committee, AFIP (2005 to present).

Administrative Service-Extramural

TJ Franks

National Heart, Lung, and Blood Institute special emphasis panel ZHL1 CSR-B (S1) NIH Grant Review: HIV and Lung (RFA-HL-04-031) (7/2005).

Course Directorship

DL Hayden

Course co-director, 15th Annual Anatomic Pathology Review Course, AFIP (April 17-23, 2005 to present).

DIRECTORATE OF FIELD OPERATIONS

Charles W. Pemble III
Col, USAF, DC
Director, Field Operations

BIOSURETY OFFICE

OFFICE OF THE ARMED FORCES MEDICAL EXAMINER

Charles W. Pemble III, Col, USAF, DC
Director, Field Operations
Date of Appointment — 28 January 2002

DIRECTORATE OF FIELD OPERATIONS

STAFF

Eric Peipelman, Maj, USAF, MSC, Administrative Officer

IMPACT

The directorate provides:

- Staff coordination for operational readiness planning, mobilization, and training.
- Facilitates delivery of maximum medicolegal and forensic science support from the AFIP to US Army and DoD operations.
- Enhancement of the OAFME and supporting pathology processes that contribute to medicolegal investigations, environmental and infectious disease threat assessment, and implementation of field-focused support and assistance through the departments of Veterinary Pathology and Telepathology.

The directorate also ensures regulatory compliance with the Institute's Biosurety program in the use and transfer of biological select agents and toxins, in support of basic and applied biologic research projects.

OFFICE OF BIOSURETY

MISSION

The Office of Biosurety is responsible to the Director of Field Operations for managing AFIP's Biosurety Program and ensuring all requirements are met as established by DoD directives, Code Of Federal Regulations, United States Army Medical Command (MEDCOM), and the Army Biosurety Program. The Biosurety Program is also responsible for meeting all Centers for Disease Control and Prevention (CDC), and United States Department of Agriculture (USDA) requirements for storage and use of all Biological Select Agents and Toxins (BSATs). The Office of Biosurety controls and monitors access to areas where BSATs are stored and used. While biological security is not new, the application of the Biosurety Program will help establish a safe, secure and reliable working environment for assigned personnel and visitors, and to safeguard the biological assets in support of AFIP's mission.

ORGANIZATION

The Office of Biosurety is organized under the Directorate of Field Operations.

1. Biosurety Officer – Mark Haley
2. Responsible Official – Charles Pemble, Col, USAF, DC
3. Alternate Responsible Official – Mary Klassen-Fischer, MD

ACCOMPLISHMENTS

1. Implemented a Biosurety Plan and Standard Operating Procedures for the AFIP IAW with DoD Directive 5210.88, DoD Directive 5210.89, draft AR 50-X, AR 190-17, 7 CFR Part 331, 9 CFR Part 121, and 42 CFR Part 73.
2. Integrated the Biosurety Program into the Physical Security Committee, creating a Physical Security/Biosurety Committee to advise and inform the Institute on issues of biosurety and safeguarding BSATs, and to continually monitor activities of the Biosurety Program for full compliance with all regulations and guidelines.
3. Maintained AFIP's Biological Personnel Reliability Program (BPRP) IAW AR 50-X to ensure that all personnel meet all reliability and security checks before accessing BSATs.
4. Assured AFIP's import/transfer permit program continued to meet all regulations and guidelines set forth by the USDA and the CDC for the import and transfer of BSATs.
5. Passed a rigorous CDC inspection that led to renewal of the Registration Certificate authorizing the possession, use, and transfer, storage, of BSATs as part of the AFIP Biosurety Program.
6. Passed CDC laboratory inspections for re-approval of newly renovated laboratories N4504 as a Biosafety Level 3 and S5311 as an Animal Biosafety Level 3.
7. AFIP was the first DoD facility to undergo a Department of Army Inspector General unrated inspection of the Department's newly established Biosurety Program.
8. Implemented the Biosurety Quarterly Key-Card Inspection IAW 190-17 which requires the complete inspection of the inventories of all Electronic Access Cards (EACS) and BSAT Keys given to personnel permitted into restricted access areas where BSATs are used and/or stored.
9. Completed annual Biosurety/CDC training for all pertinent personnel (>60) and fulfilled the hours requirement for Drug and Alcohol Awareness Training for personnel (>40) enrolled in the BPRP.
10. Completed the drug screenings on all personnel (>40) enrolled in the BPRP IAW AR 50-X.

Craig T. Mallak, CAPT, MC, USN
Armed Forces Medical Examiner
Date of Appointment – 12 June 2002

THE ARMED FORCES MEDICAL EXAMINER SYSTEM (AFMES)

STAFF

Medical Staff

Craig T. Mallak, CAPT, MC, USN, Armed Forces Medical Examiner
Stephen L. Robinson, CAPT, MC, USN, Deputy Medical Examiner
Scott Luzi, CDR, MC, USN, Deputy Medical Examiner
(A) Jerry Hodge, CAPT, MC, USN, Deputy Medical Examiner
Abubakr Marzouk, Col, USAF, MC, FS, Deputy Medical Examiner
Timothy Monaghan, CDR, MC, USN, Deputy Medical Examiner
(D) Gerald F. Donovan, LCDR, MC, USNR, Deputy Chief, Medical Examiner, Behavioral Science Division
(D) Brion C. Smith, COL, DC, USA, Chief Deputy Medical Examiner, DoD DNA Registry
Susan L. Hanshaw, LtCol, USAFR, NC, Forensic Nurse Investigator
Louis N. Finelli, LTC, MC, USA, Chief Deputy Medical Examiner, DoD DNA Registry
Dzuy T. Nguyen, Maj, USAF, MC, Associate Medical Examiner
Carol Solomon, CDR, MC, USN, Associate Medical Examiner
Michael E. Smith, MAJ, MC, USA, Regional Medical Examiner (. Gordon, GA)
Elizabeth Rouse, Lt Col, MC, USAF/FS, Regional Medical Examiner (USUHS, Md)
Stanley D. Adams, CDR, USN, Regional Medical Examiner (San Diego, Calif)
Eric Berg, COL, MC, USA, Regional Medical Examiner (Fort Campbell, Ky)
James Feig, Lt Col, MC, USAF, Regional Medical Examiner (San Antonio)
Jimmy W. Green, CAPT, MC, USN, Regional Medical Examiner (Portsmouth, Va)
(A) James L. Caruso, CDR, MC, USN, Regional Medical Examiner (Okinawa)
Kathleen Ingwersen, COL, MC, USA, Regional Medical Examiner (Landstuhl, Germany)
(D) Carl C. Stacy, COL, MC, USA, Regional Medical Examiner, (Hood, Tex)

Scientific Staff

William C. Rodriguez, III, PhD, Chief Deputy Medical Examiner, Special Investigations, Forensic Anthropology, Distinguished Scientist
Laura Regan, Maj, USAF, PhD, Chief Deputy Forensic Anthropologist

Administrative Staff

(D) Mark Vojtecky, LT Col, Administrator
(D) Jonathan Shane, SMSGT, USAF, Administrative

Superintendent

Julia Andrews, LTJG, Operations Officer
Robert Veasey, Chief of Operational Investigations
Shawn Christian, SA, USA, CID
Jean Marie Sentell, SA, NCIS
Fred Upchurch, Operation Specialist
Penny Rodriguez, Operation Specialist
(A) Mark Vojtecky, Administration, (ARP)
(D) Joyce White, Executive Administrator Assistant
(A) Barbara Dunlap, Executive Administrator Assistant

Yvonne Rodgers, Secretary
Robin Howard, Administrative Assistant, (ARP)
(D) Allison Parker, Administrative Assistant, Anteon
(D) Nicole Tate, Administrative Assistant, Anteon
(A) Wakeya Thompson, Administrative Assistant, Anteon
Monique Williams, Administrative Assistant, Anteon
(D) Paul A. Kerr, PHC, USN, Chief Forensic Photographer
(A) Michelle Papineau, HM2, USN, Forensic Photographer
Michael Godwin, TSgt, USAF, Forensic Photographer
William Ramsey, MC2, USN, Forensic Photographer
Tiffany D. McCorkle, SSgt, USAF, Forensic Photographer
Paul Mason, HM2, USN, Forensic Photographer
Kimberly E. Meadows, HM2, USN, Histology Tech
(A) Clifford Bernard, SSgt, USAF, Histology Tech

ORGANIZATION

The Armed Forces Medical Examiner (AFMES) performs the executive functions of the AFMES. Administrative and fiscal functions are provided as well as oversight of the 6 OAFME divisions, and regional and associate medical examiner functions and responsibilities under the AFMES.

a. **Medicolegal Investigations and Operations (OPS)** – Edward A. Reedy, CDR, MC, USN (SWMDO). This division is responsible for day-to-day AFMES Death Investigation operations to support worldwide forensic consultations and on-site investigations, including aircraft accidents.
b. **Education and Research** – Scott Luzi, CDR, MC, USN. This division coordinates and facilitates all departmental education and research efforts. This includes fellowship and residency programs sponsored by military and civilian education institutions.
c. **Special Investigations** – William C. Rodriguez III, PhD and Major Laura Regan, USAF, PhD. This division is responsible for anthropological investigation and consultation for the AFMES. It also maintains the Trace Materials Analysis Laboratory for the purposes of aiding the AFMES in identification of materials associated with medicolegal investigations.
d. **Forensic Toxicology** – Marilyn Past CAPT, MSC, USN. This division provides toxicology laboratory testing and consultation for AFMES investigations and for the Department of Defense Drug-testing Quality Assurance Program. It also provides education and research for this discipline. The division is organized into 4 branches: the DoD Drug Testing Branch; the Forensic Toxicology Branch; the Research and Education Branch; and the Quality Assurance Branch.
d. **Department of Defense DNA Registry** – Louis Finelli, LTC, USA, MC. This division encompasses the Armed Forces DNA Identification Laboratory (AFDIL), which is responsible for DNA-based identification of human remains for the Office of the Armed Forces Medical Examiner, and for performing consultation, education, and research in the area of forensic DNA analyses. The division also maintains the Armed Forces Repository of Specimen Samples for the Identification of Remains for the Department of Defense.
e. **Mortality Surveillance Division** - Lisa Pearse, LCDR, MC, USN of the Office of the Armed Forces Medical Examiner directs this division. The primary goal of the DoD Mortality Surveillance Division (MSD) is to perform active surveillance to monitor all Active Duty deaths. Active surveillance is necessary to quickly identify those deaths that require autopsy by the AFMES, those that could require a public health response or those that could be the result of a bioterrorist act. If a death has an infectious etiology, the MSD will take timely and appropriate steps to ensure that the agent or agents responsible are identified. As information is collected, it is stored in the Medical Mortality Registry for analysis and reporting of medical cause-specific mortality data, to include trends. The Division has also had an operational role in tracking and trending OIF related deaths, GWOT workload and autopsy specimen identifications. Finally, the Division produces Death Certificates for all fatalities autopsied by AFMES staff at Dover AFB.

IMPACT

The 6 divisions of the Medical Examiners System, Operations, Education and Research, Special Investigations, DNA, Toxicology, and Mortality Surveillance, successfully carried out their mission that encompassed an unprecedented workload and challenges. The entire staff is justifiably proud of their accomplishments in fully accounting for those who have died while

serving the United States. Just as important, the System has made significant contributions to the ongoing efforts to make the US service member of today and tomorrow safer and more effective on the battlefield and in garrison. Data gathered and research undertaken has had a direct impact on medical care and the design of the next generation of personal protective equipment. The Mortality Surveillance Division continued to expand in recognition with the vital information they provide to all levels of the Department of Defense and federal government. The motto of this Division, "Honoring the dead, protecting the living," continues to be guiding principle for the entire medical examiner system.

The department is primarily responsible for multidisciplinary forensic (medicolegal) investigations of unnatural or violent deaths due to known or suspected accidents, homicide, suicide, or undetermined means. In these cases, the AFMES must establish positive identity by scientific means, determine the cause and manner of death, and certify the death. This responsibility normally applies to 1) members of the Armed Forces on active duty or on active duty for training, and 2) civilians, including dependents of military members, whose deaths come under exclusive Federal jurisdiction.

Deaths to be investigated include, but are not limited to, the following categories:

a. Unnatural or violent deaths from known or suspected accidents, homicide, suicide, or undetermined means.
b. Deaths related to the occupation or employment of the deceased and deaths of individuals enrolled in the Personnel Reliability Program.
c. Deaths related to vehicular, aircraft, or vessel accidents.
d. Sudden and unexpected deaths in which the cause of death is not readily apparent.
e. Deaths potentially related to diseases that might constitute a threat to the public health.
f. Deaths occurring in an individual who is in the custody of law enforcement officials.
g. When the commander of a Military Medical Treatment Facility (MMTF) where the death occurred or the decedent's commander in the grade of 0-4 or higher notifies the AFMES that a medico-legal investigation on a military member is necessary for reasons of U.S. national security or for the protection of the military community.

The department reviews cases in consultation and conducts on-site medicolegal investigations, providing consultative as well as diagnostic services to the Department of Defense and other federal and nonfederal agencies. In addition, when requested and approved by higher authority, these services may be extended to foreign governments.

DIAGNOSTIC CONSULTATION

Cases	*Completed*
Military	1,615
Federal	167
Civilian	8
Interdepartmental	24
Total	1,790

DEPLOYMENTS:

AFMES teams deployed to over 140 medicolegal missions. On-site scene investigations were conducted in all of these deployments.

List of Non OIF/OEF Deployments:

1. January 1, 2006: Ft Benning, Ga, M Smith
2. January 4, 2006: Ft Lewis, Wash, S Adams
3. January 12, 2006: WRAMC, Washington, DC, E Reedy
4. January 12, 2006: Camp Lejeune, NC, J Green
5. January 12, 2006: Ft Polk, La, J Feig
6. January 19, 2006: Ft Knox, Ky, E Berg
7. January 19, 2006: Ft Stewart, Ga, J Green
8. January 19, 2006: Ft Bragg, NC, D Nguyen
9. January 27, 2006: Bethesda, Md, E Reedy
10. January 27, 2006: Ft Benning, Ga, M Smith
11. January 28, 2006: San Antonio, Tex, J Feig
12. January 29, 2006: WHMC, Lackland AFB, Tex, E Reedy

13. February 1, 2006: Ft Sill, Okla, C Stacy
14. February 4, 2006: Ft Bragg, NC, J Green
15. February 11, 2006: Tripler AMC, Honolulu, Hawaii, S Adams
16. February 13, 2006: Ft Bliss, Tex, S Robinson
17. February 14, 2006: WRAMC, Washington, DC, D Nguyen
18. February 15, 2006: Camp Lejeune, NC, M Smith
19. February 15, 2006: Camp Lejeune, NC, M Smith
20. February 21, 2006: Ft Benning, Ga, E Berg
21. February 21, 2006: Ft Benning, Ga, E Berg
22. February 22, 2006: Ft Carson, Colo, J Feig
23. March 3, 2006: Ft Stewart, Ga, M Smith
24. March 4, 2006: Vicenza, Italy, K Ingwersen
25. March 6, 2006: Seoul, Korea, J Hodge
26. March 7, 2006: Bethesda, Md, D Nguyen
27. March 13, 2006: Tripler AMC, Honolulu, Hawaii, S Adams
28. March 14, 2006: Ft Lewis, Wash, P Berran
29. March 17, 2006: Tegucigalpa, Honduras, S Robinson
30. March 18, 2006: Ft Carson, Colo, J Feig
31. March 18, 2006: Ft Benning, Ga, M Smith
32. March 21, 2006: Ft Sill, Okla, E Berg
33. March 24, 2006: Ft Leonard Wood, Mo, D Nguyen
34. March 28, 2006: Jacksonville, Fla, S Luzi
35. March 28, 2006: Ft Bragg, NC, L Finelli
36. April 4, 2006: Whiteman AFB, Mich, D Nguyen
37. April 6, 2006: Ft Bragg, NC, J Green
38. April 10, 2006: Ft Bragg, NC, M Smith
39. April 13, 2006: Camp Lejeune, NC, J Green
40. April 15, 2006: San Antonio, Tex, J Feig
41. April 15, 2006: Ft Benning, Ga, J Green
42. April 18, 2006: Ft Carson, Colo, J Feig
43. April 21, 2006: Vicenza, Italy, K Ingwersen
44. April 23, 2006: Tegucigalpa, Honduras, S Luzi
45. April 24, 2006: Ft Riley, Kan, D Nguyen
46. April 25, 2006: Ft Polk, La, S Robinson
47. April 28, 2006: Ft Stewart, Ga, D Nguyen
48. April 29, 2006: Ft Bliss, Tex, S Adams
49. April 30, 2006: Ft Benning, Ga, M Smith
50. May 1, 2006: Seoul, Korea, J Hodge
51. May 4, 2006: Ft Polk, La, E Berg
52. May 6, 2006: Bethesda, Md, P Berran
53. May 9, 2006: Ft Carson, Colo, S Adams
54. May 11, 2006: Jacksonville, Fla, E Berg
55. May 19, 2006: San Antonio, Tex, J Feig
56. May 23, 2006: Ft Lewis, Wash, S Adams
57. May 25, 2006: Cadiz, Spain, K Ingwersen
58. May 25, 2006: Columbia, SC, A Marzouk
59. May 26, 2006: WRAMC, Washington, DC, P Berran
60. May 28, 2006: Miami, Fla, C Mallak
61. May 31, 2006: Vicenza, Italy, K Ingwersen
62. June 1, 2006: Jacksonville, Fla, M Smith
63. June 3, 2006: Ft Benning, Ga, J Feig
64. June 3, 2006: Ft Benning, Ga, E Reedy
65. June 4, 2006: Ft Benning, Ga, J Feig
66. June 4, 2006: Ft Benning, Ga, E Reedy
67. June 5, 2006: Camp Lejeune, NC, M Smith
68. June 5, 2006: Patrick AFB, Fla, J Green
69. June 7, 2006: Ft Bliss, Tex, J Feig

70. June 9, 2006: Ft Carson, Colo, S Robinson
71. June 9, 2006: Biap, Iraq, A Marzouk
72. June 10, 2006: Biap, Iraq, A Marzouk
73. June 10, 2006: Biap, Iraq, A Marzouk
74. June 15, 2006: Sheppard AFB, Tex, S Luzi
75. June 23, 2006: San Antonio, Tex, J Feig
76. June 23, 2006: Vicenza, Italy, K Ingwersen
77. June 23, 2006: Vicenza, Italy, K Ingwersen
78. June 23, 2006: Vicenza, Italy, K Ingwersen
79. June 28, 2006: Pascagoula, Miss, M Smith
80. June 28, 2006: San Diego, Calif, J Feig
81. June 30, 2006: WRAMC, Washington, DC, T Monaghan
82. July 01, 2006: Ft Riley, Kan, E Reedy
83. July 02, 2006: Ft Bliss, Tex, P Berran
84. July 10, 2006: San Antonio, Tex, J Feig
85. July 10, 2006: Camp Lejeune, NC, T Monaghan
86. July 10, 2006: Camp Lejeune, NC, D Nguyen
87. July 11, 2006: Ft Benning, Ga, M Smith
88. July 11, 2006: Camp Lejeune, NC, D Nguyen
89. July 18, 2006: Floyds Knob, Ind, P Berran
90. July 18,2006: San Antonio, Tex, J Feig
91. July 26, 2006: San Antonio, Tex, J Feig
92. July 27, 2006: Ft Knox, Ky, L Tremaine
93. July 28, 2006, Ft Sill, Okla, J Feig
94. August 3, 2006: Ft Rucker, Ala, M Smith
95. August 8, 2006: WRAMC, Washington, DC, L Tremaine
96. August 12, 2006: Ft Benning, Ga, S Luzi
97. August 12, 2006: Tripler AMC, Honolulu, Hawaii, P Berran
98. August 16, 2006: Seoul, Korea, J Caruso
99. August 20, 2006: Camp Lejeune, NC, T Monaghan
100. August 21, 2006: Ft Lewis, Wash, L Tremaine
101. August 21, 2006: Ft Lewis, Wash, Ld Tremaine
102. August 28, 2006: Ft Rucker, Ala, M Smith
103. September 7, 2006: Ft Rucker, Ala, J Green
104. September 7, 2006: Vicenza, Italy, K Ingwersen
105. September 7, 2006: Ft Lewis, Wash, S Adams
106. September 8, 2006: Ft Benning, Ga, J Green
107. September 8, 2006: Ft Walton Beach, Fla, M Smith
108. September 9, 2006: Brooke AMC, Ft Sam Houston, Tex, J Feig
109. September 12, 2006: Brooke AMC, Ft Sam Houston, Tex, J Feig
110. September 13, 2006: Ft Riley, Kan, E Berg
111. September 13, 2006: Eglin AFB, Fla, J Hodge
112. September 16, 2006: Ft Rucker, Ala, M Smith
113. October 4, 2006: Ft Rucker, Ala, M Smith
114. October 11, 2006: Bethesda, Md, P Berran
115. October 12, 2006: Tripler AMC, Honolulu, Hawaii, S Adams
116. October 12, 2006: Tripler AMC, Honolulu, Hawaii, S Adams
117. October 13, 2006: WRAMC, Washington, DC, C Solomon
118. October 15, 2006: Baghdad, Iraq, E Reedy
119. October 17, 2006: Baghdad, Iraq, E Reedy
120. October 18, 2006: Ft Riley, Kan, J Green
121. October 18, 2006: WHMC, Lackland AFB, Tex, S Luzi
122. October 20, 2006: Eglin AFB, Fla, J Hodge
123. November 5, 2006: Seoul, Korea, J Caruso
124. November 6, 2006, Sheppard AFB, Tex, J Feig
125. November 9, 2006, Ft Sill, Okla, E Berg
126. November 16, 2006, Camp Lejeune, NC, J Green

127. November 21, 2006, Seoul, Korea, J Caruso
128. November 21, 2006, Portsmouth, Va, C Solomon
129. December 4, 2006, Jacksonville, Fla, M Smith
130. December 4, 2006, Camp Lejeune, NC, T Monaghan
131. December 6, 2006, San Antonio, Tex, J Feig
132. December 8, 2006, Brooke AMC, Ft Sam Houston, Tex, J Feig
133. December 11, 2006, Camp Lejeune, NC, J Green
134. December 16, 2006, Brooke AMC, Ft. Sam Houston, Tex, J Feig
135. December 17, 2006, Ft Benning, Ga, M Smith
136. December 19, 2006, Ft Bragg, NC, C Solomon
137. December 19, 2006, WRAMC, Washington, DC, P Berran
138. December 23, 2006, Ft Bragg, NC, T Monaghan
139. December 30, 2006, San Diego, Calif, S Campman
140. December 31, 2006, LaPorte, Ind, C Solomon

Medical Examiners also deployed to Dover Air Force Base more than 200 days in 2006 to account for and investigate the deaths of over 1,000 service members who died while serving in support of Operation Iraqi Freedom and Operation Enduring Freedom.

The AFMES accessioned 1790 diagnostic consultation cases during calendar year (CY) 2006. The majority of the forensic pathology consultations were submitted by or in conjunction with the Military Services investigative agencies (NCIS, CID or OSI) as part of a medicolegal investigation. The remainder of the contributors was military pathologists and other federal agencies such as the Department of Justice, the FBI, and the Department of Labor.

Regional and Associate Medical Examiners:
AFME appointed (with the concurrence of the service surgeons general) Regional Medical Examiners (RME) and Associate Medical Examiners (AME), who continued to significantly expand our geographic scope. The RMEs and AMEs conducted over 200 medicolegal investigations in 2006 under the guidance of the AFMES, which is directly reflected in immense savings in, travel dollars and man-hours for the government. The RMEs and AMEs are located at Lackland AFB, Brook Army Medical Center, and Ft Hood, Tex; Ft Campbell, Ky; Eisenhower Army Medical Center, Fort Gordon, Ga; Bethesda, Md (USUHS); NMC Portsmouth, Va; NMC San Diego, Calif; Tripler ARMC, Hawaii; Landstuhl ARMC, Germany; and Camp Lester, Okinawa, Japan.

Special Investigation Division of AFMES:
Major Laura Regan, the first active duty forensic anthropologist, joined the AFMES team 2006. Maj. Regan will serve as the Deputy Chief Forensic Anthropologist and will assist in case processing as well as teaching and research conducted by the division. Consultations have continued to be provided by the Special Investigation Division to all military investigative agencies as well as numerous federal agencies including the FBI, ATF, US Secret Service and the CIA. The Special Investigations Division has continued to conduct casework involved with overseas terrorist bombings and investigation of the deaths of detainees. The division has provided major support to AFMES during the ongoing war in Iraq by providing examination and identifications on thousands of disassociated tissue specimens, in addition to examination of the remains of local Iraqi nationals who were murdered. The Entire system has continued to be instrumental in the development of new generation body armor and research related to battlefield ballistic injuries. Significant new laboratory equipment was purchased to assist in the examination of human remains and associated trace materials including a state of the art portable digital x-ray machine. The forensic skeletal teaching collections have increased, including many specimens, which are quite unique.

Noteworthy Missions for 2006 include:
2006 proved to be a formidable year for the Armed Forces Medical Examiner System. The commitment made by the staff of the system to fully account for every military member who died while in service to their country required the staff to undertake over 1,000 death investigations. The AFMES continued to provide outstanding support of DoD and other federal agencies with regard to death investigations. During 2006, the autopsy examinations and written consultations were invaluable in promoting real-time force protection, especially for troops deployed to Operation Iraqi Freedom. In addition, several autopsy examinations and consultations were of great value in promoting aviation safety and administration of justice. Most noteworthy missions in 2006 included the following:

- The investigation of over 1,000 deaths from Operations Iraqi Freedom and Operations Enduring Freedom.
- Two deployment to Baghdad, Iraq to investigate the death of Enemy Prisoners of War.
- Continued collection and evaluation of helmets and ballistic vest from fatalities with feedback to the designers of protective equipment, vehicle designers, and combat units.
- Provided over 1,300 reports to families as part of the ongoing support to military families who have lost a loved one while in service to the United States.

Quality Assurance:

The Office of the Armed Forces Medical Examiner Quality Assurance program has maintained its quality peer review of 100% of the consultation cases. The forensic pathologists participate in the biannual College of American Pathologists surveys and anatomic pathology education programs in autopsy and forensic pathology.

EDUCATION

Courses

1. The OAFME staff conducted the George Washington University Basic Forensic Pathology course in the spring and fall of 2006. The total attendance for this course was 63.
2. The OAFME staff conducted the Basic Forensic Pathology Course in the fall of 2006. The total attendance for this course was 98.

Trainees

CDR Edward Reedy (USN), Maj Philip BERRAN (USA) and CDR Carol Solomon (USN) completed the AFIP Forensic Pathology Fellowship of 365 days duration. Three new fellows, Maj Ladd Tremaine, Maj Edward Mazuchowski and LCDR Mark Shelly, commenced the Forensic Pathology Fellowship program.

The OAFME had 1 medical student and 3 pathology residents complete rotational clerkships in Forensic Pathology during 2006.

Clinical Appointments

1. Consulting Associate Professor, Department of Anesthesiology, Duke University Medical Center, Durham, NC, CDR J. Caruso.
2. Adjunct Faculty for the Uniformed Services University of the Health Sciences, Bethesda, MD, CDR J. Caruso.
3. Adjunct Assistant Professor, Division of Physician Assistant Education, School of Allied Health Professions, University of Nebraska College of Medicine, COL E. Berg.

Faculty Appointments

1. Armed Forces Institute of Pathology, Course Director, Basic Forensic Pathology, S Luzi.
2. George Washington University/AFIP Masters of Forensic Sciences Program, Adjunct Faculty and Course Director, Principles of Forensic Pathology, D Nguyen.
3. George Washington University, Adjunct Professor, Department of Forensic Sciences, WC Rodriguez, Ill.

Presentations and Seminars

The OAFME staff gave 26 presentations, seminars and lectures during CY 2006.

1. February 2006: Pensacola, Fla, Naval Aerospace Medical Institute, “Aviation pathology,” JL Caruso.
2. February 2006: Seattle, Wash, Annual Scientific Meeting of the American Academy of Forensic Sciences, “The medicolegal investigation of recreational diving deaths,” JL Caruso.
3. March 2006: Niagara Falls, NY, New York Association of Coroners and Medical Examiners.
4. March 2006: International Conference on Emerging Infectious Diseases, “Global surveillance for infectious disease deaths in active duty United States military personnel,” R Potter.
5. March 2006: Toronto, Canada, Canadian Defense Forces Flight Surgeons, “Aviation pathology,” JL Caruso.
6. May 2006: Ontario, Calif, International Association for Identification, CT Mallak.
7. May 2006: Phoenix, Ariz, Phoenix VA/Medical Examiner System, CT Mallak.
8. May 2006: Society for Medical Innovention and Technology, “LA virtual autopsy,” L Pearse.
9. June 2006: Camp Parks, Calif, Exercise Golden Medic, CT Mallak.
10. July 2006: National Student Leadership Conference, “Forensic pathology,” D Berran.

11. July 2006: Brunswick, Ga, FLETC, Alcohol, Tobacco, Firearms and Explosives Annual Certified Fire Investigator Recertification, "Blast trauma," C Solomon.
12. August 2006: Brunswick, Ga, Alchohol, Tobacco, Firearms and Explosives (ATF), "Blast and thermal injuries and explosives," A Marzouk.
13. September 2006: Dover AFB, Del, First Air Force Medical Forensic Sustainment Support, DT Nguyen.
14. September 2006: Washington, DC, American University, National Student Leadership Conference, "Introduction to forensic pathology," A Marzouk.
15. September 2006: Bethesda, Md, National Naval Medical Center, Lecture for pathology residents, DT Nguyen.
16. September 2006: Vancouver, BC, Canada, Annual Scientific Assembly, "Honor after the fall," SL Hanshaw.
17. October 2006: "Sudden Natural Death," GW Course, Rockville, MD, C Solomon.
18. October 2006: "Sharp Force Injuries," GW Course, Rockville, MD, Maj Berran.
19. October 2006: "Facial Reconstruction," "Deaths in Custody," and "Electrical/Thermal Injuries," Dr. Steve Campman.
20. November 2006: US Department of Justice Public Safety Officer Training, Washington, DC, DT Nguyen.
21. November 2006: Creighton University Forensic Medicine Seminar, Omaha Neb, CT Mallak.
22. November 2006: Mass Casualty and Introduction to OAFME/Dover Operations, Rockville, Md, A Marzouk.
23. November 2006: Exhibit presentation at the Radiologic Society of North America 92nd Scientific Assembly and Annual Meeting, "Multidetector computed tomography (MDCT) analysis of projectile injury in forensic investigation," HT Harcke, AD Levy, JM Getz, S Robinson.
24. December 2006: University of Maryland Medical Center, Department of Radiology Grand Rounds, "Virtual autopsy: AFIP experience," AD Levy, JM Getz.
25. December 2006: Portsmouth Naval Hospital, "Virtual autopsy in high energy trauma," DM DeLonga, JM Getz.
26. December 2006: Tele-videoconference for the American Society for Clinical Pathology, "The pathologist's approach to SCUBA diving deaths," JL Caruso.

RESEARCH

Publications

Journal Articles

1. Eckart RE, Scoville SL, Shry EA, Potter RN, Tedrow U. Causes of sudden death in young female military recruits. *Am J Cardiol*. 2006;Jun 115;97(12)1756-1758.
2. Isenbarger DW, Atwood JE, Scott PT, Bateson T, Coyle LC, Gillespie DL, Pearse LA, Villines TC, Cassimatis DC, Finelli LN, Taylor AJ, Grabenstein JD. Venous thromboembolism among United States soldiers deployed to Southwest Asia. *Thromb Res*. 2006;117(4):379-383.
3. Levy AD, Abbott RM, Mallak CT, Getz JM, Harcke HT, Champion HR, Pearse L. Virtual autopsy: Preliminary experience in high velocity gunshot wound victims. *Radiology*. 2006;240 (2): 522-528.

Exhibit

Harcke HT, Levy AD, Getz JM, Robinson S. Multidetector Computed Tomography (MDCT) Analysis of Projectile Injury in Forensic Investigation. Exhibit presentation at the Radiologic Society of North America 92nd Scientific Assembly and Annual Meeting. November 25 -December 1, 2006.

Book Chapters

1. Mallak CT, contributing author, "Basic Competencies in Forensic Pathology: A Forensic Pathology Primer," College of American Pathologists Press, 2006.
2. APEX Question for the College of American Pathologists on Electrocution, Maj Phillip Berran, co-author CT Mallak.

Collaborations:

- Military-Preventable deaths in the Special Operations Community, Special Operations Command, Tampa, Fla.
- Civilian-Recreational Diving Fatalities, Divers Alert Network, Duke University Medical Center
- OAFME works closely with the Military Services Safety Centers in aircraft accident investiga-

tions, safety issues and educational endeavors for their respective aeromedical communities. We also provide aviation pathology training to the Canadian aeromedical community.

PROFESSIONAL ACTIVITIES

Committees

1. College of the American Pathologist, Forensic Pathology Committee, CT Mallak.
2. Chair of the Toxicology Research Committee for the College of American Pathologist, JL Caruso.
3. US Navy LCDR (0-4) Promotion Board, CT Mallak.
4. Board of Governors, National Association of Medical Examiners, CT Mallak.
5. Member of College of American Pathologists Delegation to the American Medical Association, JL Caruso.

Editorial Boards:

American Journal of Forensic Medicine and Pathology, CT Mallak

Manuscripts Reviewed:

Members of the department reviewed articles for the following journals.

1. *American Journal of Forensic Medicine*
2. Duke University Medical Center
3. Naval Undersea Medical Institute
4. Undersea and Hyperbaric Medical Society
5. ASCP Check Samples, Forensic Pathology (Gunshot Wound of the Head with Brain Pulmonary Embolus)

Other Accomplishments

Two OAFME staff received appointments as Professorial Lecturers for George Washington University. OAFME staff testified as expert witnesses in several homicide trials and assault cases. OAFME has had multiple media appearances including national television.

Consultants:

JL Caruso

Associate Consulting Professor of Pathology and anesthesiology at Duke University Medical Center, Durham, NC.

WC Rodriguez

1. Chief consultant FBI Forensic Science Training Unit, and the FBI's Child Abduction and Serial Killer Unit.
2. Co-Director of the FBI's yearly Evidence Response Team -Field Course: Search and Recovery of Decomposed and Skeletonized Remains Evidence Response Team. FBI National Training Academy, Quantico, Va.

Continuing Education:

Department staff attended the Basic Forensic Pathology course during 2006.

GOALS

The Office of the Armed forces Medical Examiner has several goals for the upcoming year, including:

1. Continue the full accounting mission for fallen ervice members in Iraq, Afghanistan, and elsewhere.
2. Continued implementation of AFMETS, a system wide data-racking program.
3. Continued collaboration with NORTHCOM and Homeland Security to develop a national mass disaster response plan.
4. Assist with the transition and return of jurisdiction for investigation of deaths of Iraqi's to the National Medical Examiner System.
5. Formalization of a combat trauma registry with emphasis on body armor and other protector gear evaluation and improvement.
6. Begin the transition to a stand-alone organization as directed by the 2005 BRAC Law.
7. Begin the design process for the Medical Examiner Facility at Dover Air Force Base.

Louis N. Finelli, LTC, MC, USA
Chief Deputy Medical Examiner and Director,
Department of Defense DNA Registry
Date of Appointment—1 June 2006

DoD DNA REGISTRY (OAFME)

STAFF

Administration Section

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Mark Burack, Software Developer (FTI)
(A) Edwin Moline, Helpdesk Technician (FTI)
(D) Losif Gurevich, Software Developer (FTI)
(D) Dobrimir Vassilev, Software Developer, (FTI)
(D) Natalia Pylypenko, Software Developer, (FTI)

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(D) Kevin S. Carroll, CSL(NCA), Resource/Contracts Manager (GS)
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Herbert Simms, Inventory Management Specialist (GS)
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Marie Reese, Lead QC Technician (ARP)
Arvin Solis, Sr. Specimen Processor Team Leader (ARP)
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Gloria Lindmark, Sr. Specimen Processor (ARP)
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Rene Malones, Systems Administrator (FTI)
(D) Al Lambert, Network Administrator (EDS)
(A) Danielle Shepherd, Administrative Assistant

IMPACT

- The Department of Defense (DoD) DNA Registry (the Registry) is a division of the Armed Forces Medical Examiner System (AFMES), and an operational element of the Armed Forces Institute of Pathology (AFIP). The Office of the Surgeon General (OTSG) provides Army Executive Agency. The Registry has two subordinate branches, the Armed Forces DNA

Identification Laboratory (AFDIL) and the Armed Forces Repository of Specimen Samples for the Identification of Remains (AFRSSIR).

- The DNA Registry is charged with the missions of DNA identification of human remains, information technology development, mass fatality management, and DNA reference specimen collection, archival, storage, and retrieval services for the Department of Defense.
- In addition to routine AFMES casework, the Registry established a 3-person Outside Casework and Mass Fatality Contingency Section that was authorized to perform reimbursable casework for other Federal and non-Federal clients until they were required to support current military operations around the globe. This core mission is funded through the Defense Health Program (DHP). DHP funding levels had been flat lined over the last few fiscal years resulting in a net decrement of approximately 12%, while the demand for DoD forensic DNA casework and reference card collections continues to grow, particularly in relation to Operations Enduring and Iraqi Freedom and the continuing Global War on Terrorism. This budgetary trend is starting to reverse, with a nominal increase in DHP funding during the past fiscal year.
- The Joint POW/MIA Accounting Command (JPAC) is a field-operating agency of the United States Pacific Command (PACOM). JPAC is the lead organization in the search, recovery, and identification of US service members missing from prior military conflicts. Although JPAC meets most mission requirements with internal assets (forensic anthropology, odontology, data analysis, recovery teams), it has become increasingly reliant upon the use of mitochondrial DNA (mtDNA). Year 2006 statistics showed AFDIL mtDNA support is required for more than 80% of JPAC CIL casework. As the recognized world leader in this technology, AFDIL has provided this DNA support to JPAC since 1994, when the US Army G-1, the executive agency for JPAC's predecessor, the Central Identification Laboratory, Hawaii (CILHI), first requested it. The G-1 continues to fund AFDIL for the costs of these DNA services. A 5-year Memorandum of Agreement (MOA) between the AFIP, the Casualty and Memorial Affairs Operations Center (CMAOC), as the EA for DoD mortuary affairs, and JPAC is still under negotiations. Due to the lack of a budget for FY 2007 and the lack of the signed 5-year MOA, current personnel vacancies have remained unfilled.
- The DoD DNA Registry continued to support the Service Casualty Offices (SCOs) and the Defense Prisoner of War/Missing Personnel Office (DPMO) in support of family members of unaccounted for service members from all American armed conflicts.
- In conjunction with the other governmental and non-governmental organizations responsible for the personnel accounting mission, the DoD DNA Registry provided numerous briefings and tours for family members and presentations at monthly family member updates. In support of the Defense Prisoner of War Missing Personnel Office monthly family updates, AFDIL staff members collected 165 family reference specimens from eligible donors. At these monthly updates, over 3,000 family members were briefed on current recovery operations of missing American service members from the Vietnam War, Korean-Cold War, World War II, and World War I.

MISSION

The Department of Defense DNA Registry (Forensic DNA Division) supports the ongoing missions of the Armed Forces Medical Examiner System (AFMES) and the Armed Forces Institute of Pathology (AFIP) through consultation, education, and research. This division is the global leader in human remains identification; forensic DNA analysis; mass-fatality incident management; bioinformatics development and scientific data management; as well as DNA reference specimen collection and storage. Furthermore, the DNA Registry provides mtDNA casework analysis, data management, and research support to the Joint POW/MIA Accounting Command's Central Identification Laboratory (JPAC CIL) to assist in their mission of service member remains recovery and identification. A full 100% of DoD funded resources are applied in direct support of the DoD.

VISION

Dedicated people providing global leadership in consultation, education, and research in the fields of human remains identification; forensic DNA analytical services; bioinformatic analysis and management services; mass-fatality specimen collection and management services; and human reference specimen collection, cataloging, archival, and retrieval repository services.

VALUES

Quality

Uncompromising quality is what distinguishes us from other laboratory organizations. It is the foundation on which the DoD DNA Registry is built and we will not sacrifice it for the sake of expense or expediency. We do this by dedicating ourselves to the relentless pursuit of excellence in all services we provide.

Integrity

Trust, both among us and with colleagues external to our organization, is the cornerstone of our success. All of our processes, decisions, and actions are driven by personal and organizational integrity.

We are honest and forthright in all our dealings with those we provide services for and with each other. We are responsible participants in the forensic scientific community and we exemplify steadfast principles in honest discourse and production.

Innovation

We constantly seek innovative ways to enhance the services we provide. We support the creativity, courage, and persistence that transform ideas, thoughts, and dreams into knowledge and knowledge into insights and insights into action. We seek continuous learning through the adaptation of existing knowledge, and through experimentation and research, with the full understanding progress can be made through thoughtful trial and error.

Accountability

We accept full responsibility for our performance and acknowledge our accountability for the ultimate outcome of all we do. We strive for continuous improvement, and believe competence, reliability, and rigorous adherence to sound scientific principles and discipline are the keys to excellence. We look for others to do the same.

Collaboration

We believe in teamwork and the limitless possibilities of professional synergies. We, as an organization, achieve excellence by putting collective goals ahead of personal interests. We support and encourage open communication and meaningful participation in relevant scientific discourse among colleagues from various personal and professional backgrounds. We respect individual differences and we value the power of diversity when directed with unity of purpose.

Leadership

We strive to be the best at what we do. We embrace the foundations of personal leadership – courage, competence, confidence and a passion for surpassing expectations. The Department of Defense DNA Registry fosters an environment of mutual respect, both professional and personal. One in which the contributions of each employee are held in the highest regard; where integrity, trust, and an uncompromising commitment to excellence and innovation guide our success in the mission of consultation, research, and education through the understanding and application of DNA technology.

DEPARTMENT OF DEFENSE DNA REGISTRY OFFICE OF RESOURCE AND CONTRACT MANAGEMENT (ORCM)

The Office of Resource and Contract Management (ORCM) is comprised of a core group of United States Government employees. This office is responsible for all functions considered inherently governmental. These activities include processing and procurement of all requests for reagents, laboratory supplies, equipment, maintenance services, facility management, and Memoranda of Agreement (MOA) development, monitoring, and execution. Other activities included human resource (HR) functions, budget formulation, execution, monitoring and reporting, inventory and supply stock management, and equipment inventory and accountability. Additional activities include management of all contracts and acquisition of services to support AFDIL efforts.

Specific accomplishments during calendar year 2006:

1. Managed all facilities for the organization ensuring the leases, utilities, renovations, security, and maintenance were provided and/or accomplished.
2. Conducted a Source Selection to acquire an augmentation support team for the Dover Port

Mortuary in support of the Armed Forces Medical Examiner System (AFMES). This effort was to ensure required services were provided for the Medical Examiner.

3. Acquired, administered and managed the Information Technology (IT) service contracts for software development, network support, database management, hardware maintenance, and bench-level desktop support.
4. The ORCM is responsible for oversight of the development, testing, and deployment of the DNA Registry Inventory Management Systems (DRIMS), a comprehensive module within the Laboratory Information Systems Application (LISA) operating system of the Laboratory Information Management System (LIMS). This program allows for the automated scheduling of laboratory replenishment, equipment failure notification, comprehensive manufacturer, supply, and distribution information collection, and other integrated inventory management functions.
5. Managed the DNA portion of the ARP contract which encompasses approximately 100 administrative, managerial, scientific, and technical positions at the AFDIL and AFRSSIR.

THE ARMED FORCES DNA IDENTIFICATION LABORATORY (AFDIL)

AFDIL Mitochondrial (mtDNA) Section

The primary mission of the AFDIL's Mitochondrial DNA section is to work with the Joint POW/MIA Accounting Command – Central Identification Laboratory (JPAC-CIL) to identify the remains of soldiers missing from past American military conflicts, primarily those from Southeast Asia, the Korean War, and World War II. In 2006, several new technologies developed by AFDIL's research section were implemented for use on casework samples. The successful use of low copy number (LCN) STR analysis, mtDNA single nucleotide polymorphism (SNP) analysis, and LCN Y testing on 2 cases with remains more than 40 years old was an important milestone for the mtDNA section, as these techniques will soon be widely applied to casework samples on a regular basis. No other forensic laboratory in the country currently utilizes these techniques for identification of ancient skeletal remains.

Through a Memorandum of Agreement (MOA) with the US Army Casualty and Memorial Affairs Operations Center (CMAOC), as the Executive Agent (EA) for the human remains repatriation activities of the Department of Defense (DoD), the mtDNA section processed, analyzed and reported 753 biological (skeletal) specimens in 2006. Through the implementation of new technologies into active casework, we were able to exceed this goal with an appreciable increase over FY2005. In support of the Family Outreach Program of CMAOC, we received 1,240 new family reference samples (FRS) in CY2006. We also completely processed 1,136 family references in CY2006. In support of the JPAC-CIL mission, we were also able to generate 78 identification reports for unknown service members in CY2006.

At the beginning of CY2006, the mtDNA section of AFDIL upgraded to the ABI PRISM® 3130xl Genetic Analyzer for sequencing of casework samples, and successfully integrated these instruments into active casework. We also began processing casework samples on 96-well plates in our sequencing lab, thus enabling an increase in efficiency resulting in an adjustment of manpower into other areas of the testing process.

In CY2006, the mtDNA section continued to expand interactions with other forensic scientists and organizations, and mtDNA staff members have given presentations and created posters for professional conferences across the United States and around the world. This scientific outreach has improved our stature in the national and international forensic scientific communities. Our scientists have also been invited to participate in workshops and project partnerships, creating a worldwide network of cooperation, understanding and collaboration. Our scientists also actively participate in projects within our local community. Many of our scientists have given their time to speak with both community and educational groups, including presentations for school-age children. We have given career day lectures, judged science fairs, and given facility tours to local students in order to encourage and foster scientific education within the curriculum of the local school systems. Our support of the local community has grown in the past year, and hopefully these interactions have educated members of the community about science as a whole, and perhaps, engendered the next generation of forensic scientists.

2006 was a very successful year for the mtDNA section. Cooperative interaction between the JPAC-CIL anthropologists and AFDIL molecular biologists are improving techniques at both facilities, and the mtDNA section is working with and participating in the activities of both the

nuclear and research sections at AFDIL to better integrate new systems and improve the overall performance of the entire organization. In 2007, we plan on continuing our collaboration with JPAC-CIL, other AFDIL sections, and worldwide scientific organizations in order to expand and advance new techniques that can only serve to improve our efforts to repatriate the remains of missing US service members to their families and a grateful nation.

The Nuclear Section is comprised of scientist proficient in autosomal and Y STRs and mitochondrial DNA analysis.

In 2006, the Nuclear DNA Section processed more than 3,600 evidence and reference specimens associated with Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). For the 53 cases submitted for rapid (STAT) analysis the average turn around time was 1.0 days, exceeding commercial TAT by 1,000%. In these instances, remains could be identified and repatriated with family members almost immediately. Without DNA analysis, identification would have been impossible.

In October of 2006, the Nuclear Section identified the remains of a victim from a 10-year-old Air Force mishap. A HC-130P Air Force Reserve cargo plane crashed off Cape Mendocino in November 1996 killing 10 men. The Navy employed major recovery efforts but none of the crew were recovered. A black T-shirt containing several skeletal elements was recovered in 2006 and submitted to the AFMES for examination. Jonathan Leonard, one of the missing, had a bloodstain reference card on file at the AFRSSIR. The DNA profile obtained from the reference card matched the DNA profile obtained from the submitted humerus. The identification of Jonathan Leonard has prompted additional recovery efforts.

The Section was integral in identifying remains recovered from the USS Gherardi that capsized in 1942 in the icy waters of Narragansett Bay, Rhode Island. Only 2 of the 17 sailors survived the incident. In 1943, fishermen recovered the partial remains of a body and due to the poor condition of the body they were not able to provide a positive identification. As a result, the remains were buried in an unmarked grave. In 2006, the grave was excavated and the remains were sent to the AFMES for examination. The mitochondrial sequence information obtained from the skeletal remains was concordant with the mitochondrial sequence information obtained from 2 maternal relatives of Raymond S. Johnson. More than 50 years after the USS Gherardi capsized, the remains of S1c. Raymond S. Johnson were returned to his family.

In addition to providing support to AFMES cases, the section also performed DNA analysis on 22 civilian cases for other federal agencies. These cases utilized a combination of autosomal STRs, Y-STRs and mitochondrial DNA on over 200 specimens. The majority of cases consisted of criminal paternity cases from the military and biopsy specimens submitted from Veterans Hospitals.

In 2005, a small group of scientists from the Nuclear DNA Section entered into a collaboration with the Federal Bureau of Investigation to perform DNA analysis on biological material collected from the initiator components of Improvised Explosive Devices (IEDs). Within the first year, this group was able to perform DNA analysis on over 190 hairs. Analysis has included both mitochondrial and nuclear DNA analysis, as appropriate. AFDIL's participation in this project has provided DNA information to aid in the capture of individuals creating IEDs on the global front.

Casework capabilities were expanded with the implementation of the AmpFlSTR" Y-filer' kit. This kit utilizes a single multiplex assay to amplify 17 loci in a single reaction increasing the lab's discriminatory power for paternally relatedness. The AmpFlSTR" Y-filer' primer pairs are designed to amplify the Scientific Working Group-DNA Analysis Methods (SWGDAM) recommended loci, which are the 'European minimal haplotype (DYS19, DYS385a/b, DYS389I/II, DYS390, DYS391, DYS392, and DYS393) plus DYS438 and DYS439. In addition to these loci, the AmpFlSTR" Y-filer' kit contains the following highly polymorphic loci: DYS437, DYS448, DYS456, DYS458, DYS635 [Y-GATA C4] and Y GATA H4.

Applied Biosystem's (AB) GeneMapper" ID Software program for autosomal and Y STR data analysis were implemented into routine nuclear casework in 2006. The software program was designed to streamline the laborious task of evaluating STR data by utilizing Process Component-Based Quality Values (PQVs) to identify and sort genotypes based on validation defined quality thresholds. GeneMapper" ID coupled with the enhanced capabilities within our LISA ASAP program have resulted in a more efficient and less time consuming process for reviewing STR data.

The ABI 3100s were upgraded to the 3130xl platform. The upgrade involved replacing the syringe based polymer block with a piston based block, as well as a software upgrade. The

Quality Control/Validation team evaluated each instrument to ensure that the 3130xl was equivalent to that of the 3100 before upgrade. The team assessed whether high quality and reasonable quantities of nuclear DNA could be extracted from the BODE Buccal DNA collector, a non-invasive DNA specimen collection device. The collection paper can be punched manually or by an automated punching instrument. Results indicated that sufficient amounts of DNA could be obtained and on average more DNA was obtained from the tip of the BODE Buccal swab than from the sides. There was little to no difference in the quality of the DNA obtained when compared to cotton tip swabs as indicated by the lack of inhibition or degradation. The BODE Buccal DNA Collectors are a viable option for nuclear DNA reference samples.

AFDIL RESEARCH SECTION

The Research Section, considering its size, is remarkably productive and works harmoniously as a team. Job satisfaction is high: people are motivated, open, communicative, and striving for additional skills and responsibilities.

Specific research and databasing projects include:

- Robotic, bioinformatic-integrated high throughput mtDNA control region databasing.
- Robotic, bioinformatic-integrated high throughput Y-chromosomal databasing.
- Robotic, bioinformatic-integrated high throughput autosomal STR databasing.
- Robotic, bioinformatic-integrated high throughput mtDNA SNP databasing of reference samples.
- Development of highly sensitive LNC STR typing protocols capable of recovering full or nearly full profiles from ~60% of extracts produced by mtDNA casework section.
- Development of simplified demineralization bone extraction protocols that produce on average 5-20 times greater yield of ancient DNA from degraded bone.
- Development of quantitative real time PCR for nuclear DNA, and a range of mtDNA amplicon sizes.
- Continued experimentation for solving the problems associated with remains exhumed from the National Cemetery of the Pacific (Punchbowl):
  - Characterization of molecular crosslinking
  - Crosslinking reversal experiments
  - Novel polymerases for damaged DNA
  - Improved extraction protocols
  - Molecular cloning for mixture resolution.

Development of a stand-alone bioinformatics system for the Research Section, to complement features of the primary AFDIL LIMS system. Features of the system include tracking of samples and plates through the entire process of high throughput analysis, for mtDNA control region, whole mtGenome, and STR databasing, mtDNA SNP databasing. Also included are flexible databases for comparison and higher level analysis of data. Also included are macros for conversion of data from GeneMapper, permitting automated analysis of a robotic SNP databasing project for the NIJ grant, and a searchable, interactive index program for determining standard calling of difficult mtDNA sequence motifs.

Completion of a set of 8 multiplex SNP panels for increased mtDNA discrimination. The first, most important, multiplex is being implemented for the mtDNA casework section, and the research section is still working in close cooperation with the mtDNA and QC sections for any questions/suggestions. The secondary multiplex for the most common HV1/HV2 type is currently in validation.

Statistical and population genetic advice regarding interpretation of forensic DNA results.

Collaborations with: NIST; University of Innsbruck; NIH; IBIS; FBI; FSS; GWU; Gold Coast University (Florida); The European DNA Profiling Group (EDNAP), and numerous contributors of database samples worldwide.

Maintained a high profile international recognition for AFDIL as one of the world's most innovative forensic DNA laboratories.

AFDIL Laboratory Automation & Special Projects

In 2006, the Laboratory Automation & Special Projects were separated from the Nuclear DNA Section and established as an autonomous laboratory component. The primary responsibilities of this group are highlighted in its unofficial mission statement:

— The Automation Section provides reliable, accurate, and efficient comprehensive DNA testing services in support of the objectives of the Department of Defense DNA Registry. Through its relationship with the Armed Forces Medical Examiner System, the Joint Prisoner of War – Missing in Action Accounting Command (JPAC), and the Joint Federal Agencies Intelligence DNA Database (JFAIDD) Working Group, as well as other federal and international agencies affiliated with the global war on terrorism, the Automation Section affords security and protection to American citizens and military service members and offers emotional closure and peace of mind for the families of military and civilian casualties resulting from armed conflict, terrorism, and mass disaster. The Automation Section accomplishes this through personal attention to ethical work practices and discreet, compassionate performance of duties. The Automation Section is an adaptable and flexible resource with which the Department of Defense can perform high throughput DNA analysis, as well as a valuable contributor to the greater forensic DNA testing community through various continuing education and outreach initiatives.

— The Automation Section assumed primary responsibility for the high throughput short tandem repeat (STR) typing and mitochondrial (mt) DNA sequence analysis of reference DNA samples (bloodstains and oral swabs) for the JPAC Family Reference Database (~1,200 samples), the JFAIDD (~12,000 samples), and the Armed Forces Repository of Specimen Samples for the Identification of Remains (AFRSSIR) Quality Control Program (~200 samples). Laboratory space was renovated to accommodate and centralize automated (robotic) DNA testing equipment. A second Supervisory DNA Analyst position was created to better distribute project and staff management responsibilities. The results of Y chromosome STR typing using the Applied Biosystems Yfiler kit were first applied to casework in 2006. The Applied Biosystems Genemapper ID software was validated and implemented as the STR data analysis tool (in both the Automation Section and the Nuclear DNA Section). Significant enhancements were made to the High Throughput and Case Management modules of Laboratory Information Systems Applications (LISA).

— For some time, the Automation Section has been participating in an innovative mitochondrial DNA analysis project which spans the interest of several federal agencies. In 2006, this effort culminated in the submission of AFDIL database extracts to a partner laboratory for mtDNA base composition determination via electrospray ionization mass spectrometry. These data will continue to be archived at AFDIL under the management of the Automation Section and will aid DoD forensic research and casework. The Automation Section also took a leadership role in forming several scientific collaborations among both the national and international communities. As a result of their progressive posture and research successes, AFDIL was invited to advise a joint federal agency investigation into field-deployable DNA biometric technologies.

THE ARMED FORCES REPOSITORY OF SPECIMEN SAMPLES FOR THE IDENTIFICATION OF REMAINS (ARMED FORCES REPOSITORY – AFRSSIR)

In 2006, the AFRSSIR accessioned 261,111 DNA reference specimens from 1,612 separate collection sites (Army – 131,049, Air Force – 43,163, Navy – 45,667, Marine Corps – 37,203, Coast Guard –5,029, Civ – 3,638).

The Director of Repository Operations and Repository ARP Supervisor conducted collection site inspections at 8 facilities to provide informational briefings and to evaluate collection procedures and compliance with applicable directives.

Accessioned DNA reference specimen inventory at the end of the year totaled 4,993,593. Total service members on file at the AFRSSIR represent about 98% of total military population. In the past year the repository processed 14 donor requests for destruction of donor DNA samples and 34 requests for release of specimens. The repository released 1,126 DNA specimens to AFDIL for human remains identification.

The Director of Repository Operations conducted 1 presentation for an audience totaling more than 100 attendees regarding DNA Identification in Mass Fatality Incidents.

The Director of Repository Operations continued support to the State of Louisiana in the aftermath of Hurricane Katrina. As a member of the Hurricane Victim DNA Identification Expert Group (HVDIEG), he traveled to Louisiana on 2 occasions subsequent to the HVDIEG mission accomplishment in March 2006.

Presentations

1. January 2006: Palm Springs, Calif, LabAutomation2006, "The application and implementation of high-throughput and bioinformatics systems for forensic DNA databases," (Poster), JL Saunier, KA Sturk, JA Irwin, RS Just, TM Diegoli, KM Strouss, BC Smith, TJ Parsons.
2. January 2006: St. Louis, Mo, Promega Working Group Meeting, "The validation and implementation of the Biomek 2000 Laboratory Automation Workstation using Promega's DNA IQ System for extracting DNA from oral swabs," BD Ackermann, TD Anderson, TL Johnson, DA Lee, TP McMahon, BC Smith.
3. February 2006: Savannah, Ga, Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections), "DNA in the accounting process," JJ Canik, C Los, C Paintner, E Chatfield.
4. February 2006: Seattle, Wash, Department of Defense DNA Registry-Laboratory & the Joint POW-MIA Accounting Command Seminar on Human Remains Identification, 58th Annual Meeting, American Academy of Forensic Sciences, "Ancient DNA research and the challenge of the punchbowl," (Presentation), TM Diegoli, OM Loreille, TJ Parsons.
5. February 2006: Seattle, Wash, Annual Meeting of the American Academy of Forensic Sciences, "DNA identification of human remains from the crash of American Airlines connection flight #5966, Kirksville, Mo, October 19th, 2004," DA Boyer, P Foley.
6. February 2006: Brooklyn, NY Brooklyn Law School, "Quality assurance and quality control," (Presentation), T McMahon
7. March 2006: San Francisco, Calif, Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections), "DNA in the accounting process," JJ Canik, C Ernst, A Desnoyers, K Sundling.
8. March 2006: Bethesda, Md, Sexual Assault Response Team Training Program, "DNA and its application to forensic science," (Presentation), K Murga.
9. March 2006: Paris, France, University of Paris VII (Jussieu), "Ancient DNA research and the challenge of the punchbowl," (Presentation), OM Loreille.
10. April 2006: St. Louis, Mo, Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections), "DNA In The Accounting Process," JJ Canik, D Haliniewski, K Meyers, S Shunn.
11. April 2006: Annandale, Va, Annandale High School – DNA Day 2006, "The application of molecular biology and genetics to forensic DNA analysis," (Presentation), MD Coble.
12. April 2006: Roanoke Va, Virginia Annual Future Technologies Meeting, "The role of DNA in mass disasters," T McMahon.
13. April 2006: Cincinnati, Ohio, Applied Biosystems Future Trends in Forensic DNA Technology Human Identification University Seminar Series, "The National Institute of Justice's Expert Systems Testbed Project Update: the evaluation of expert systems for single source samples," TL Johnson, etal.
14. May 2006: Washington, DC, Applied Biosystems Future Trends in Forensic DNA Technology Roadshow, "The National Institute of Justice's Expert Systems Testbed Project Update: the evaluation of expert systems for single source samples," TL Johnson, etal.
15. May 2006: Rockville, Md, Department of Defense Quality Assurance Oversight Committee for DNA Analysis, "Research overview," MD Coble.
16. May 2006: Rockville, Md, AFDIL Staff Seminar, "NIJ Project: multiplexed SNP assays to increase mtDNA testing," RS Just, TM Diegoli, KA Sturk.
17. May 2006: Bethesda, Md, Mitochondrial Molecular Biology and Pathology Workshop, NIH, "Mitochondrial DNA SNPs in evolution and forensic analysis," MD Coble, RS Just, JL Saunier, JE O'Callaghan, IH Letmanyi, CT Peterson, JA Irwin, TM Diegoli, BC Smith, PM Vallone, JM Butler, TJ Parsons.
18. June 2006: Crystal City, Va, 37th Annual meeting of the National League of Families for Prisoners of War, Presentation and Family Reference Collections, "DNA in the accounting process," JJ Canik, SM Barritt, LN Finelli.
19. June 2006: Crystal City, Va, NIJ DNA Grantees Meeting, "Development and expansion of high quality control region databases to improve forensic mtDNA evidence interpretation," MD Coble, JA Irwin, JL Saunier, KM Strouss, TM Diegoli, KA Sturk, RS Just, TJ Parsons.
20. June 2006: Helsinki, Finland, International Society of Forensic Genetics, English Speaking Working Group, "Investigation of point heteroplasmy in the mitochondrial control region: a synthesis of observations from nearly 5000 global population samples," JA Irwin, JL Saunier, KM Strouss, KA Sturk, TM Diegoli, W Parson, A Brandstätter, RS Just, TJ Parsons.
21. June 2006: Washington, DC, Promega Technology Tour, "Adapting AFDIL's PowerPlex 16

Interpretation Guidelines for use with the FSS-i3 Expert System," JR Charak, TD Anderson, TL Johnson, LN Finelli.

22. June 2006: Helsinki, Finland, International Society of Forensic Genetics, English Speaking Working Group, "Resolution of a challenging case using mtDNA SNPs and LCN PP16 testing," (Presentation), RS Just, JA Irwin, CW Los, M Leney, SM Barritt-Ross, TJ Parsons.
23. June 2006: Washington DC, Applied BioSystems Human Identification Road Show, "Validation of the Applied Biosystems YFiler Kit," T McMahon.
24. July 2006: Syracuse, NY, Defense Prisoner of War Missing Personnel Family Update, Presentation and Family Reference Collections, "DNA in the accounting process," JJ Canik, M Fasano, J Kappeller, M Sommer.
25. August 2006: Minneapolis, Minn, Defense Prisoner of War Missing Personnel Family Update, Presentation and Family Reference Collections, "DNA in the accounting process," JJ Canik, S Oliver, S Bettinger, J Zimdars.
26. August 2006: Charleston, SC, Pathology Research Day—Medical University of South Carolina, "Human identification using DNA analysis: past, present, and future," MD Coble.
27. September 2006: Innsbruck, Austria, DNA in Forensics 2006, "Considerations for a text-string based search engine for forensic mitochondrial control region databases," (Poster), JA Irwin, KA Sturk, JL Saunier, MD Coble, TJ Parsons.
28. September 2006: Innsbruck, Austria, DNA in Forensics 2006, "Development and expansion of high quality control region databases to improve forensic mtDNA evidence interpretation, "(Presentation), MD Coble, JA Irwin, KM Strouss, JL Saunier, TM Diegoli, KA Sturk, RS Just, TJ Parsons.
29. September 2006: Innsbruck, Austria, DNA in Forensics 2006, "High efficiency DNA extraction from bone by total demineralization," OM Loreille, TM Diegoli, JA Irwin, MD Coble, TJ Parsons.
30. September 2006: Seattle, Wash, Defense Prisoner of War Missing Personnel Family Update, Presentation and Family Reference Collections, "DNA in the accounting process," JJ Canik, N Givens, B Ackermann, M Stone.
31. October 2006: Crystal City, Va, 2006 Korea/Cold War Annual Government Briefings, Presentation and Family Reference Collections, "DNA in the accounting process, JJ Canik, SM Barritt, LN Finelli.
32. October 2006: Ft Huachuca, Ariz, US Army Intelligence Center & School Bioinformatics Conference, "DNA in the accounting process," JJ Canik.
33. October 2006: Nashville, Tenn, International Symposium on Human Identification, "Using mitochondrial SNP typing to resolve common HV1/HV2 types in highly degraded samples from a missing persons case," (Poster), RS Just, CW Los, C Miller, M Leney, SM Barritt-Ross, TJ Parsons.
34. October 2006: Nashville, Tenn, Promega, "Assessing Promega DNA IQTM System and Invitrogen ChargeSwitchTM kit technology for bone and tissue extractions," (Poster), D Mueller.
35. October 2006: Nashville, Tenn, Promega, "Evaluation of the Applied Biosystems AmpF_STR® MiniFiler™ PCR Amplification Kit," (Poster), J Bas.
36. October 2006: Nashville, Tenn, International Symposium on Human Identification, "Adapting AFDIL's PowerPlex 16 Interpretation Guidelines for use with the FSS-i3 Expert System," JR Charak, TD Anderson, TL Johnson, LN Finelli.
37. November 2006: Crystal City Va, FBI CODIS Meeting, "Future technologies," (Presentation), T McMahon.
38. November 2006: Philadelphia, Pa, Drexel University School of Medicine, "Molecular biology applications to forensic science: identification issues utilizing nuclear and mitochondrial DNA analysis," R Tate.
39. November 2006: Rye Brook, NY, North East Association of Forensic Scientists Annual Meeting, "Y-Chromosome and mtDNA workshop," JM Butler, MD Coble.
40. November 2006: Rockville, Md, AFDIL Staff Seminar, "A review of mtDNA databases: uses of, errors within, and what's ahead," MD Coble.
41. November 2006: Albuquerque, NM, Defense Prisoner of War Missing Personnel Family Update, Presentation and Family Reference Collections, "DNA in the accounting process," JJ Canik, J McMahon, S Edson, C Miller.

Publications

1. Coble MD, Vallone PM, Just RS, Diegoli T, Parsons TJ. Effective strategies for increasing forensic discrimination with the mtDNA coding region. I*nternational Journal of Legal Medicine*. 2006;120:27-32.
2. Dixon LA, Dobbins AE, Pulker H, Butler JM, Vallone PM, Coble MD, Parson W, Berger B, Brubweiser P, Mogensen HS, Morling N, Nielsen K, Sanchez JJ, Petkovski E, Carracedo A, Sanchez-Diz P, Brion M, Irwin JA, Just RS, Loreille O, Parsons TJ, Syndercrombe-Court D, Schmitter H, Gill P. Analysis of artificially degraded DNA using STRs and SNPs: results of a collaborative European (EDNAP) exercise. *Forensic Science International*. 2006;164:33-44.
3. Niederstätter H, Coble MD, Grubwieser P, Parsons TJ, Parson W. Characterization of mtDNA SNP typing and mixture ratio assessment with simultaneous real-time PCR quantification of both allelic states. *International Journal of Legal Medicine*. 2006;120:18-23.
4. Kovatsi L, Parsons TJ, Just RS, Irwin JA. Genetic variation for 15 autosomal STR loci (PowerPlex 16) in a population sample from northern Greece. *Forensic Science International*. 2006;159(1):61-63

Audits/Inspections

1. January 2006: Montgomery County, Md, Fire Marshall Hazardous Use Permit Department. Obtained new certification and issued new Hazardous Use Permit.
2. February 2006: AFIP Annual Threat Assessment & Security Audit of the AFIP Gaithersburg Annex Complex. No deficiencies noted.
3. April 2006: Potomac Region DNA Audit (External). No deficiencies noted. Note: This one audit used the FBI DNA Quality Assurance Standards checklist and fulfilled the audit requirements for the DOD DNA Quality Assurance Oversight Committee, The Potomac Group DNA Laboratory Annual External Audit, and the ASCLD/LAB Annual Laboratory Assessment (Internal).
4. May 2006: DOD DNA Quality Assurance Oversight Committee. No deficiencies noted.
5. June 2006: American Society of Crime Lab Directors/Laboratory Accreditation Board (ASCLD/LAB) audit. No deficiencies noted (Lab accreditation retained).
6. June 2006: Montgomery County, Maryland Fire Marshall Inspection of the AFIP Rockville Annex Complex. Numerous citings for "clutter blocking fire egresses." Re-inspected on 30 June 2006, no deficiencies noted.
7. July 2006: AFIP Annual Threat Assessment & Security Audit of the AFIP Rockville Annex Complex. No deficiencies noted.
8. August 2006: College of American Pathologist's External Accreditation Audit/Inspection. No deficiencies noted.
9. August 2006: With the successful completion of the CAP Audit the Armed Forces DNA Identification Laboratory (AFDIL) of the DNA Registry retained its CLIA-88 compliant accreditation.

Marilyn Past, CAPT, MSC, USN
Chief
Date of Appointment – 03 October 2006

DIVISION OF FORENSIC TOXICOLOGY (OAFME)

ORGANIZATION

The Division of Forensic Toxicology is organized into 3 departments:

1. Postmortem and Human Performance Testing Laboratory
2. DoD Drug Detection Quality Assurance Laboratory
3. Forensic Toxicology Program Development and Education

STAFF

Scientific:

(A) Marilyn Past, PhD, CAPT, MSC, USN, Chief Deputy Medical Examiner, Forensic Toxicology
(D) Aaron Jacobs, PhD, COL, MS, USA, Chief Deputy Medical Examiner, Forensic Toxicology
(A) Timothy Lyons, PhD, LTC, MS, USA, Assistant Chief Deputy Medical Examiner, Forensic Toxicology
(D) David Lesser, PhD, CDR, MSC, USN, Assistant Chief Deputy Medical Examiner, Forensic Toxicology
Barry S. Levine, PhD, D-ABFT, Chief Toxicologist
John Jemionek, PhD, Special Projects Chemist
Michael Smith, PhD, D-ABFT, Chemist/Expert Witness
Buddha Paul, PhD, Chief, Drug Testing Research
Eric T. Shimomura, PhD, Research Chemist
(A) Insook Kim, PhD, Research Chemist
Karen McCart, PhD, MAJ, MS, USA, Chief, Quality Assurance
(A) Matthew Jamerson, PhD, LT, MSC, USN, Chief (in-coming), Quality Assurance
(D) Katherine Abold Todorov, PhD, Capt, USAF, Chief, Quality Assurance
Christopher Dunkley, PhD, LT, MSC, USNR, Chief, DoD Drug Detection QA Laboratory
Joseph Magluilo, Jr., Chief, Laboratory Operations
Karoline Shannon, Deputy Chief, Laboratory Operations
(D) Stephen Bray, HM1, USN, NCOIC, Forensic Toxicology Services
(A) Gregory Pierce, TSgt, USAF, NCOIC, Forensic Toxicology Services
(D) Emilda Greenidge-Blake, TSgt, USAF, Assistant NCOIC, Forensic Toxicology Services
(A) Trisha Podsiadlo, SSgt, USAF, Assistant NCOIC, Forensic Toxicology Services
Shawn Vorce, Confirmation Section Supervisory Analytical Toxicologist
Robert Jones, Analytical Toxicologist
Joseph Addison, Analytical Toxicologist
Adeyinka Babalola, Analytical Toxicologist
Dawn Cox, Analytical Toxicologist
Justin Holler, Analytical Toxicologist
William E. Mayo, Analytical Toxicologist
Rebecca DeRienz, Analytical Toxicologist
Pamela McDonough, Analytical Toxicologist
Amber Rickard, Analytical Toxicologist

Megan Manos, Analytical Toxicologist
Scott Larson, Analytical Toxicologist
(D) Augustina Hui, Analytical Toxicologist
(D) Jason Sklerov, Analytical Toxicologist
(A) Jenny Runkle, Analytical Toxicologist
(A) Jon Moore, Analytical Toxicologist
Daniel Trinidad, MSgt, USAF, Laboratory Technician
Sandra Zimiga, SSgt, USAF, Laboratory Technician
(A) Audrey Sokol, SSgt, USAF, Laboratory Technician
(A) Jason Werne, SSgt, USAF, Laboratory Technician
Ephraim Escobar, HM2, USN, Laboratory Technician
Ngu Fon, HM3, USN, Laboratory Technician
Venus Anglemeyer, SPC, USA, Laboratory Technician
Joan Driver, SPC, USA, Laboratory Technician
Andrea Hernandez, SPC, USA, Laboratory Technician

Administrative:

Shairose Lalani, MSgt, USAF, Superintendent, Division of Forensic Toxicology
(D) Jon Shane, SMSgt, USAF, Superintendent, Division of Forensic Toxicology
(A) Larry Correa, HMC, USN, Navy Senior Enlisted Advisor (Rockville annex)
(A) Curtis Young, HM1, USN, Administrative Assistant
Teresa Schaefer, Computer Specialist
(D) Tara Short, Executive Assistant
(A) Marilyn Van Degrift, Executive Assistant
Jacqueline O. Jordan, Secretary

IMPACT

The Division of Forensic Toxicology and its personnel play a key role in expanding the reach of Forensic Toxicology in establishing the relationship that toxicological agents play in military readiness as relating to illness, accident, or death. The Division of Forensic Toxicology is divided into 3 departments: (1) Post-Mortem and Human Performance Testing Laboratory, which provides toxicology laboratory testing and consultation in medical examiner investigations and other medical cases of national interest; (2) DoD Drug Detection Quality Assurance Laboratory, which provides quality assurance oversight of the entire DoD Drug Testing Program through certification, proficiency testing, and laboratory inspections of the 6 military forensic drug testing laboratories; they also perform special testing for drugs of abuse; and (3) Forensic Toxicology Program Development and Education, which plays a key role in ensuring that personnel are aware of the latest developments in Forensic Toxicology and that the services we provide to our customers are of the highest quality, timely, and economically sensible. The scope of operations of the Division of Forensic Toxicology is immense, providing toxicological services to over 1,700 military, federal, state, local, and non-governmental agencies worldwide.

The Post-Mortem and Human Performance Testing Laboratory offers toxicological services for the Office of the Armed Forces Medical Examiner, all Armed Forces air, ground, and sea based mishap investigations, Armed Forces criminal investigations, Armed Forces fitness for duty investigations, and Armed Forces medicolegal determinations (e.g., DUI). Toxicological consultations have also been provided to the National Aeronautics and Space Administration (NASA) following the Space Shuttle Columbia accident investigation, the Central Intelligence Agency following the assault on a Moscow theatre, and to hundreds of military and federal agencies during Operation Enduring Freedom and Operation Iraqi Freedom.

The DoD Drug Detection Quality Assurance Department is integrally coupled with the DoD Drug Testing Program, providing laboratory certification procedures for 6 (1 Air Force, 2 Army, 3 Navy) DoD Forensic Drug Testing Laboratories through proficiency testing and laboratory inspections. Twenty-five thousand (25,000) open and blind proficiency specimens each year are prepared and sent by departmental personnel to the military laboratories to ensure that results are reported with 100% accuracy. Continued laboratory certification for each Military Forensic Drug Testing Laboratory is maintained through vigorous quarterly inspections conducted by division personnel and civilian toxicologists. Departmental personnel contribute immeasurably to the continuing success of the DoD Drug Testing Program and the decline of drug use by military personnel. This is accomplished by development of new procedures to analyze drugs (e.g., LSD, THC, Ketamine) at lower concentrations using cutting

edge technology, conducting prevalence testing for emerging drugs of abuse such as Ecstasy (MDMA), oxycodone, and benzodiazepines (e.g., valium), conducting special testing for drugs of abuse that are not tested for by the military drug testing laboratories (psilocin, ketamine, various drugs associated with sexual assault cases including gamma-hydroxybutyrate (GHB) and rohypnol, benzodiazepines, dextromethorphan, zolipidem, methadone, mescaline, and others) and providing expert witness testimony at military courts martial and federal court proceedings.

The Forensic Toxicology Program Development and Education Department keeps our personnel, and the services that we provide to our customers, on the cutting edge of forensic toxicology through a dynamic continuing education program and program development initiatives tailored to meet the varied needs of our customers. Two examples are offered: for Operation Iraqi Freedom a method was developed to provide evidence of exposure to chemical warfare agents and, the already broad scope of the toxicological agents that we can detect was further widened by developing methods to analyze for fentanyl (narcotic analgesic), psilocin (from ingesting mushroom), mescaline (from ingesting peyote), RDX (high energy explosive), and hallucinogenic tryptamines.

DIAGNOSTIC CONSULTATION

8,608 cases were reported in 2006. The average turnaround time for these cases was 3.0 days.

Type of Case	*Case Count*	*Avg Turnaround Time (Days)*	*Source of Case*	*Case Count*
Aircraft Incidents	2,976	1.7	USA	3,957
Air Fatalities	71	3.1	USAF	2,130
Criminal/Investigative	3,798	4.0	USN	1,276
Postmortem	1,357	3.6	USMC	534
Quality Controls	330	2.1	USCG	37
Surveys	76	3.8	Civilian/Other	272
			QC/Surveys	402
Total	8,608	3.0 days	Total	8,608

LEGAL SUPPORT

Military and civilian toxicologists are often asked to provide expert witness testimony in military and other federal legal proceedings. The Quality Assurance section of Forensic Toxicology is responsible for preparing responses to requests for laboratory business records, Freedom of Information Act (FOIA) requests, discovery requests, and other special data requests (e.g., DoD Quality Assurance Laboratory (DoDQA) records). The number and types of requests are shown in the table below:

Branch of Service	*Certified Reports/Summary Reports*	*Discovery Requests*	*Memorandums for the Record*	*Full Laboratory Record Packages*	*Total*
Civilian	3	1		25	29
AFMES			1	1	2
Army	1	1		22	24
Navy	5			7	12
Air Force	1	6		29	36
Marine	2		1	10	13
Total	12	8	2	94	116

OPERATIONS/CONSULTATION

Expert Witness Testimony/Support/Consultation:
Military/federal/civilian expert witness testimony and legal support (includes cases scheduled and rescheduled for which expert witness testimony/consultation and/or other legal support were provided):

January 2006
Dover AFB,Del, M Smith
Robins AFB, Ga, M Smith
Ft Meade, Md, M Smith
Laughlin AFB, Tex, D Lesser
Edwards AFB, Calif, J Jemionek

February 2006
NAS Jacksonville, Fla, M. Smith
Ft Wainwright, Ark, M Smith
Naval Station Norfolk, Va, J Jemionek
Little Rock AFB, Ark, J Jemionek
McGuire AFB, NJ, J Jemionek
MacDill AFB, Fla, J Jemionek

March 2006
US District Court, Maryland, B Levine
FT Campbell Ky, COL Jacobs
Navy Yard, Washington DC, M Smith
Camp Arifjan, Kuwait, D Lesser
COB Speicher, Iraq, D Lesser
McGuire AFB, NJ, J Jemionek
MacDill AFB, Fla, J Jemionek
Seymour Johnson AFB, NC, J Jemionek
SJA, US Coast Guard Academy, M Smith

April 2006
US District Court, Maryland, B Levine
Spangdahlem, Germany, COL Jacobs
Puerto Rico (Navy), B Paul
Quantico MCB, Va, M Smith
Ft Campbell, Ky, M Smith
Naval Station, Norfolk, Va, D Lesser
Tinker AFB, Okla, J Jemionek
Eglin AFB, Fla, J Jemionek
Quantico MCB, Va, J Jemionek
MacDill AFB, Fla, J Jemionek

May 2006
Andrews AFB, Md, B Paul
NAS Jacksonville, Fla, B Paul
Eglin AFB, Fla, M Smith
US District Court, Alexandria, Va, E Shimomura
Naval Station, Norfolk, Va, D Lesser
Camp Victory, Iraq, D Lesser
Quantico MCB, Va, J Jemionek
MacDill AFB, Fla, J Jemionek
Seymour-Johnson AFB, NC, J Jemionek
McGuire AFB, NJ, J Jemionek
Patrick AFB, Fla, J Jemionek
Wichita Reserve Center, Kan, J Jemionek
Shaw AFB, SC, J Jemionek

Eglin AFB, Fla, J Jemionek
SJA, Weisbaden AFB, Germany, M Smith

June 2006
Camp Pendleton, MCB, CA, B Paul
Hill AFB, Utah, B Paul
Keesler AFB, Miss, J Jemionek

July 2006
US District Court, Maryland, B Levine
Navy Yard, Washington, DC, M Smith
Buckley AFB, Colo, C Dunkley
Navy Yard, Washington, DC, E. Shimomura
Naval Station, Norfolk, Va, D Lesser
McChord AFB, Wash, J Jemionek
Pope AFB, NC, J Jemionek
SJA, Schweinfurt Army Installation, Germany, M Smith

August 2006
Naval Station, Norfolk, Va, M Smith
US District Court, Alexandria, Va, M Smith
US District Court, Arlington, Va, C Dunkley
Pearl Harbor Naval Base, J Jemionek
Moody AFB, Ga, J Jemionek
Sheppard AFB, Tex, K McCart
SJA, US Air Force Academy, M Smith

September 2006
Naval Station, Norfolk, Va, B Paul
Hill AFB, Utah, J Jemionek
Luke AFB, Ariz, J Jemionek
Hill AFB, Utah, J Jemionek
MacDill AFB, J Jemionek
Altus AFB, Okla, K McCart

October 2006
US District Court, Maryland, B Levine
Naval Station Norfolk, Va, B Paul
Buckley AFB, Colo, B Paul
Seymour-Johnson AFB, NC, M Smith
US District Court, Alexandria, Va, E Shimomura
Tyndall AFB, Fla, C Dunkley
Luke AFB, Ariz, J Jemionek
Camp Lejeune, NC, J Jemionek

November 2006
Mildenhall AFB, England, M Smith
Tyndall AFB, Fla, C Dunkley
Luke AFB, Ariz, C Dunkley
Kirtland AFB, NM, J Jemionek
Pope AFB, NC, J Jemionek
Shaw AFB, SC, K McCart
Ft Campbell, Ky, M Smith

December 2006
Vandenburg AFB, Calif, B Paul
US Air Force Academy, Colo, M Smith
Kirtland AFB, NM, J Jemionek
Buckley AFB, Colo, C Dunkley
Dover AFB, Del, M Smith

DoD Quality Assurance Drug Laboratory Inspections:

1. January 2006: Navy Drug Testing Laboratory, Jacksonville, Fla, QA Inspection, D Lesser, K McCart, J Jemionek
2. January 2006: Army Drug Testing Laboratory, Tripler, Hawaii, QA Inspection, K Todorov Abold, B Paul
3. March 2006: Navy Drug Testing Laboratory, San Diego, Calif, QA Inspection, A Jacobs, K McCart
4. April 2006: Navy Drug Testing Laboratory, Great Lakes, Ill, QA Inspection, A Jacobs, K McCart
5. April 2006: Army Drug Testing Laboratory, Ft Meade, Md, QA Inspection, C Dunkley, M Smith, J Holler
6. April 2006: AF Drug Testing Laboratory, Brooks City Base, Tex, QA Inspection, A Jacobs, J Jemionek
7. May 2006: Navy Drug Testing Laboratory, Jacksonville, Fla, QA Inspection, C Dunkley, B Paul
8. May 2006: Army Drug Testing Laboratory, Tripler, Hawaii, QA Inspection, C Dunkley, M Smith
9. July 2006: Navy Drug Testing Laboratory, San Diego, Calif, QA Inspection, B Paul
10. July 2006: Navy Drug Testing Laboratory, Great Lakes, Ill, QA Inspection, C Dunkley
11. August 2006: Army Drug Testing Laboratory, Ft Meade, Md QA Inspection, B Paul, J Jemionek
12. August 2006: AF Drug Testing Laboratory, Brooks City Base, Tex, QA Inspection, C Dunkley
13. September 2006: Army Drug Testing Laboratory, Tripler, Hawaii, QA Inspection, C Dunkley, J Holler
14. September 2006: Navy Drug Testing Laboratory, Jacksonville, Fla, QA Inspection, J Jemionek
15. November 2006: DoDQA Laboratory, Rockville, Md, QA Inspection, First Advantage
16. November 2006: Navy Drug Testing Laboratory, San Diego, Calif, QA Inspection, D Lesser
17. November 2006: Navy Drug Testing Laboratory, Great Lakes, Ill, QA Inspection, B Paul
18. December 2006: Army Drug Testing Laboratory, Ft Meade, Md, QA Inspection, M Past, C Dunkley
19. December 2006: AF Drug Testing Laboratory, Brooks City Base, Tex, QA Inspection, J Jemionek

National/International Consultations:

1. Research Triangle Institute, NC, RTP, B Paul
2. Teddington, UK, LGC International Forensic Science Meeting Coordinator, J Magluilo
3. Medical School, U Sao Paulo, Brazil, M Smith

EDUCATION

Lectures:

1. May 2006: Harvard Associates for Police Science, "Use of toxicological information in the final diagnosis," B Levine.
2. May 2006: AFIP, "Use of toxicological information in the final diagnosis," B Levine.
3. August 2006: Marine Corps Senior Leadership Conference, Dallas, Tex, "Forensic drug testing services provided by the Toxicology Division of the Office of the Armed Forces Medical Examiner," J Jemionek.
4. October 2006: Harvard Associates for Police Science, "Use of toxicological information in the final diagnosis," B Levine.
5. November 2006: AFIP, "Postmortem changes in chemistry and toxicology," B Levine.
6. November 2006: University of Sao Paulo, Brazil, "Using forensic toxicology results in court," M Smith.
7. November 2006: Medical School, U Sao Paulo, Brazil, "Forensic toxicology and US courts," M Smith.
8. November 2006: Medical School, U Sao Paulo, Brazil, "Postmortem forensic toxicology," M Smith.
9. December 2006: University of Maryland, "Forensic toxicology I," B Levine.
10. December 2006: University of Maryland, "Forensic toxicology II," B Levine.

Workshops/other training

1. 3-5 May 06 (for 36 students), AFIP/ARP Short Course: "Forensic toxicology case studies and drug related litigation," Rockville, Md, Course director: M Smith, Lectures by J Jemionek, B Levine, D Lesser, M Smith, E Shimomura, S Vorce.
2. Conducted week-long training for 6 forensic pathology residents, J Jemionek.

Faculty Appointments

Clinical Associate Professor, University of Maryland School of Medicine, Department of Pathology, B Levine

Presentations

1. Great Lakes, Ill, Tri-Service Drug Testing Laboratory Managers' Meeting, "Armed Forces Institute of Pathology DoD Quality Assurance lab status update," C Dunkley.
2. Great Lakes, Ill, Tri-Service Drug Testing Laboratory Managers' Meeting, "Correlation of drug positive urinalysis as a function of day of week collection," J Jemionek, C Dunkley.
3. Great Lakes, Ill, Tri-Service Drug Testing Laboratory Managers' Meeting, "A prevalence study of methadone in the military using Microgenics DRI® methadone and methadone metabolite (EDDP) screening assays," R DeRienz.
4. Seattle, Wash, 58th American Academy of Forensic Sciences Meeting, "Absence of elevated carboxyhemoglobin following inhalation of automobile exhaust," B Levine.
5. Teddington, UK, LGC International Forensic Science Meeting, "Analysis of commercially available products in response to a positive urinalysis," J Holler.
6. Teddington, UK, LGC International Forensic Science Meeting, "Overview of the DoD drug detection quality assurance laboratory," J Holler.
7. Teddington, UK, LGC International Forensic Science Meeting, "Smoking cocaine and drinking alcohol—a deadly mix," B Paul.
8. Teddington, UK, LGC International Forensic Science Meeting, "Overview of forensic toxicology and aviation accident investigations," J Magluilo.
9. Austin, Tex, 36th Society of Forensic Toxicologists Meeting, "Screening and confirmation of urine samples adulterated with papain," S Larson, J Magluilo.
10. Austin, Tex, 36th Society of Forensic Toxicologists Meeting, "Detection of phencylidine (PCP) into vitreous humor," B Levine, D Cox, A Jacobs.
11. Austin, Tex, 36th Society of Forensic Toxicologists Meeting, "Case report: a meclizine (Antivert®) related death," B Levine.
12. Austin, Tex, 36th Society of Forensic Toxicologists Meeting, "Simultaneous SPE and LC-APCI-MS Assay for nicotine, cotinine, trans-3'-Hydroxycotinine and norcotinine in plasma," I Kim.

RESEARCH

Publications

Journal Articles

1. Kaushik R, Levine B, LaCourse WR. A brief review: HPLC methods to directly detect drug glucuronides in biological matricies (Part I). *Analytica Chimica Acta*. 2006;556: 255-266.
2. Kaushik R, LaCourse WR, Levine B. Determination of ethyl glucuronide in urine using reverse-phase HPLC and pulsed electrochemical detection (Part II). *Analytica Chimica Acta*. 2006;556:267-274.
3. Lebeau MA, Montgomery MA, Morris-Kukoski C, Schaff JE, Deakin A, Levine B. A comprehensive study on the variations in urinary concentrations of endogenous gamma-hydroxybutyrate. *Journal of Analytical Toxicology*. 2006;30:98-105.
4. Sklerov JH, Cox DE, Moore KA, Levine B, Fowler, D. Tizanidine distribution in a postmortem case. *Journal of Analytical Toxicology*. 2006;30:331-334.
5. Sklerov JH, Levine B, Ingwersen K, Arronica-Pollak P, Fowler D. Two cases of fatal amlodipine overdose. *Journal of Analytical Toxicology*. 2006;30:346-50.
6. Cox D, DeRienz R, Levine, B, Jufer-Phipps R, Jacobs A, Fowler D. Distribution of ether in two post-mortem cases. *Journal of Analytical Toxicology*. 2006;30:635-37.
7. Paul BD, Smith M. Cyanide and thiocyanate in human saliva by gas chromatography-mass spectrometry. *Journal of Analytical Toxicology*. 2006;30:511-515.
8. Huestis MA, Smith ML. Modern analytical technologies for the detection of drug abuse and doping. Review Article. *Drug Discovery Today: Technologies*. 2006;3(1):49-57.
9. Huestis MA, ElSohly M, Nebro W, Barnes A, Gustafson RA, Smith ML. Estimating time of last oral ingestion of cannabis from plasma THC and THCCOOH concentrations.

Therapeutic Drug Monitoring. 2006;28:540-544.
10. Huestis MA, Gustafson RA, Moolchan ET, Barnes A, Bourland JA, Sweeney SA, Hayes EF, Carpenter PM, Smith ML. Cannabinoid concentrations in hair from documented cannabis users. *Forensic Science International*. 2006; [Epub ahead of print]
11. Jemionek, JF, Bosy T, Jacobs, A, Holler, J, Maglulio, J, Dunkley, C. Five cases of d-amphetamine positive urines resulting from ingestion of "Brazilian nutritional supplements" containing fenpoporex. *ToxTalk*. 2006;30(2):11.
12. Kim, I, Huestis, MA. A validated method for the determination of nicotine, cotinine, trans-3¢-hydroxycotinine, and norcotinine in human plasma using solid phase extraction and liquid chromatography-atmospheric pressure chemical ionization - mass spectrometry. *Journal of Mass Spectrometry*. 2006;41:815-821.

Book Chapter

Huestis MA, Smith ML. Human cannabinoid pharmacokinetics and interpretation of cannabinoid concentrations in biological fluids and tissues. In: Mahmoud AE, ed. *Marijuana and the Cannabinoids*. Totowa, New Jersey: Humana Press; 2006: 205-236.

Book

Levine B, ed. *Principles of Forensic Toxicology*, revised and updated second edition, Washington, DC: AACC Press; 2006.

Projects

The division developed several new methods for toxicological analysis and worked on many projects, as listed below:

- Detection of drug testing adulterants in urine
- Adulteration of urine specimens with papain
- Detection of chemical markers in biological samples after smoking cocaine
- Clinical studies of drugs of abuse in humans
- Prevalence study for ketamine in military specimens
- Evaluation of Microgenics ketamine / norketamine immunoassay reagent -initial evaluation of new product development
- Prevalence study for methadone/methadone metabolite in military specimens
- Methadone/methadone metabolite method development
- Evaluation of Microgenics methadone immunoassay reagent for sensitivity and specificity of detection of methadone use
- Analysis of MDMA immunoassay positive/confirmation negative specimens submitted from the DoD drug testing laboratories
- On-site consultation for method improvement of d-amphetamine and d-methamphetamine MTPA methods at Army Forensic Drug Testing Laboratories Tripler and Ft Meade
- Special drug testing including unit sweep testing for benzodiazepines, zolpidem, dextromethorphan/chorpheniramine, synthetic opiate compounds, compounds of interest in sexual assault cases (GHB & rohypnol) and psilocin.
- Development of an assay for salvia divinorum
- Method development and validation for the determination of three beta-blockers, atenolol, metoprolol, and propranolol in whole blood and urine using solid phase extraction and liquid chromatography-electrospray ionization-mass spectrometry
- Tested food product for THC for an operational area investigational case
- Preliminary coordination for planned study of drugs of abuse pre-employment testing in saliva for USMEPCOM
- Cocaine/BZE analysis in wastewater by GC/MS (collaboration with the Office of National Drug Control Policy)
- Detection of hydromorphone in samples that contain morphine
- Developed a method for sumatriptan GC/MS analysis for the AFMES
- Tissue distribution of difluoroethane for the AFMES
- Developed an assay for zolpidem metabolites II and X for undetermined cause of death or suicide cases for AFMES
- Tested for mefloquine in all suicide/undetermined cause of death cases for AFMES

Proficiency Testing/inspections

1. Ran the DoD Quality Assurance Open and Blind Drug testing Proficiency Program worldwide with a total of 39,347 Quality Control (QC) specimens sent to and analyzed

by the military drug testing laboratories in 2006: 1,930 military open proficiency specimens, 17,280 military blind proficiency specimens, 384 civilian proficiency specimens, 14 special testing specimens, and 19,739 prevalence study specimens
2. Participated in College of American Pathology (CAP) and the United States Department of Transportation (USDOT) proficiency testing: CAP T (toxicology-3x per year), CAP UT (urine toxicology-3x per year), CAP UDC (urine drug toxicology-4x per year), CAP AL1 (whole blood alcohol/volatiles-3x per year), CAP SO (carbon monoxide-3x per year), CAP FTC (whole blood forensic toxicology-2x per year), and USDOT (NHTSA blood alcohol-2x per year).
3. The Division of Forensic Toxicology had 2 on-site inspections: First Advantage (14-15 March, 2006), and American Board of Forensic Toxicology (ABFT; 27-28 Jul 2006).

PROFESSIONAL ACTIVITIES:

Editorial Boards:

1. *Journal of Analytical Toxicology*, B Levine
2. *American Journal of Forensic Medicine and Pathology*, B Levine

Manuscripts/Research Proposals Reviewed:

1. *Journal of Analytical Toxicology*, B Levine (5), J Jemionek (2), B Paul (1)
2. *American Journal of Forensic Medicine and Pathology* (5), B Levine
3. *Journal of Chromatography*, B Paul (1)
4. *Forensic Science International*, M Smith (2)
5. Defense Threat Reduction Agency, Joint Science and Technology Office for Chemical and Biological Defense, Medical Chemical and Biological Defense Division, Grant Review (~$8,000,000), C Dunkley

National Panels:

1. Navy Medical Logistics Command Technical Evaluation Board: B Paul, D Lesser, J Jemionek
2. DoD Biochemical Testing Advisory Board: A Jacobs (Chair), M Past (in-coming Chair), J Jemionek, D Lesser
3. DoD Laboratory Certification Inspection Program: A Jacobs, M Past, D Lesser, K McCart, C Dunkley, J Jemionek, M Smith, B Paul, J Holler
4. Drug Testing Advisory Board, Department of Health and Human Services, Rockville, Md: M Smith

Awards:

1. March 2006: Forensic Toxicology Division was selected as the 2006 Medical Laboratory Observer Medical Laboratory of the Year.
2. June 2006: S Vorce, Office of the Deputy Assistant Secretary of Defense for Counternarcotics (DASD/CN) annual Tri-Service Achievement Award.

DIRECTORATE OF CLINICAL SCIENCES

Christopher R. Owner, PhD
Director, Clinical Services

ADVANCED MEDICAL EDUCATION (DME)
TELEMEDICINE AND DISTANCE LEARNING
SCIENTIFIC LABORATORIES
RADIOLOGIC PATHOLOGY
REPOSITORY & RESEARCH SERVICES
CENTER FOR SCIENTIFIC PUBLICATIONS
BIOPHYSICS

Christopher R. Owner, PhD
Chair
Date of Appointment — 4 August 1997

DEPARTMENT OF MEDICAL EDUCATION

ORGANIZATION

The department is organized by function and comprises workshop and seminar design and development, residents-fellows programs, text-based education, Web-based instruction, meeting planning, marketing, art and graphics, study sets, audiovisual, and accounting. The chairperson of the department reports to the Principal Deputy Director Florabel G. Mullick, MD. The Oversight Committee for Continuing Medical Education oversees the department's activities.

STAFF—EDUCATIONAL DIVISION

Christopher R. Owner, PhD, Chairperson
Carlos H. Moran, Associate Director
Ricky H. Giles, Educational Coordinator (Pathology)
Mark L. Hovland, Educational Coordinator (Pathology)
Stephen W. Huntington, TSgt, USAF, Educational Coordinator (Pathology)
Carl Williams, Educational Coordinator (Radiology)
Monte D. Grace, HM2, USN, Educational Coordinator (Radiology)
Virginia A. McMillan, Visual Information Specialist

Administrative

Lisa P. Holmes, Meeting Management
René M. Sutton, Marketing Specialist
Kim L. Williams-Chasten, Office Management

Other AFIP/ARP Staff in Support of Mission

Frank Roberts, Histopath QA
Nicole Jenkins, Histopath QA
Estelle Page, Histopath QA

Audiovisual

Joseph W. Frederick, Audiovisual Support Technician
Isaac J. Miller, Jr., Audiovisual Support Technician

Ash Library

Prem Kalra, Library Consultant
Judith Paige, Library, Library Technician
Daniel Mulholland, Library Technician

IMPACT

The educational mission of the Armed Forces Institute of Pathology [AFIP] and American Registry of Pathology [ARP] is to "carry out educational activities in partnership with government, academic, and private sector organizations and to develop and apply expert information for the benefit of individuals and their health care professionals (AFIP Strategic Plan, 1997). Specifically, we support continuing medical education in pathology and radiology and other related medical disciplines by providing specialized information and advanced research and technology in the study of the pathophysiology of disease.

Scope

The AFIP uses numerous approaches to determine how courses are structured and what information to include. First, and foremost, is the material we glean from our secondary consult service. The AFIP receives over 55,000 cases annually, many of which are difficult diagnostic cases that become resources for our educational activities. In the past 12 months, we have begun to obtain needs data from the Institute's Pathology Information System [PIMS]. Numerous strategies are employed to assess the needs of participants in AFIP's CME activities: The diagnostic agreement codes 1s, 3s, and 4s from the PIMS database are selected. This ongoing "dialogue" with the community of pathologists shapes the information selected for both our workshops and didactic programs to accurately reflect the informational needs of both the military and civilian physician. To augment these data, we also assess the scientific advances in the field of pathology and medicine, seek the consensus of expert pathologists and clinicians, solicit feedback from both potential and actual attendees at our programs, and monitor the media to determine issues and topics of importance to the public. The effectiveness of these "audience assessment" activities can be seen in the evaluation data. The courses we offer cover most of the subspecialties in pathology including dentistry, veterinary, forensics, and environmental medicine.

Audience

Our primary audience includes military and civilian pathologists, radiologists, and related subspecialty clinicians in the United States and Canada, and Internationally. Secondary audiences include other physicians, health professionals, and interested ancillary medical support systems.

PROFESSIONAL ACTIVITIES

In 2006, the AFIP and ARP offered 28 live courses, 1 regularly scheduled conference, with 46 sessions, 24 Ground Rounds Video teleconferences [VTCs], 26 Weekly Professional Staff conferences, 4 Web-based courses, 4 Journal Club meetings, and one Enduring Material Open File Legal Medicine sent to 4,061 pathologists, clinicians, legal medicine professionals, veterinary pathologists, radiologists, dentists, forensic anthropologists, military and civilian residents, and professionals in related disciplines.

International Training

The Department of Medical Education is responsible for coordinating all training/visits to the AFIP and for ensuring that all DOD guidelines and regulations are adhered to. The training office serves as the liaison between the AFIP and the Office of the Army Surgeon General (OTSG) and/or the US Department of State as appropriate. The training office is responsible for ensuring all training initiatives comply with governing regulations and maintain compliance with approved international or applicable affiliation agreements.

In addition to services available through the Department of Medical Education, the AFIP offers trainees/visitors an opportunity to participate in hand-on training/study programs. The AFIP offers many educational opportunities to those interested in training rotations, fellowships, and a variety of staff conferences provided by specialized departments within the Institute. We offer one-on-one instruction with staff pathologists and the opportunity to participate in AFIP activities, providing an optimal training environment.

The Training Office processed approximately 350 requests from foreign nationals to attend Department of Medical Education and Radiology courses, and coordinated approximately 243 interdepartmental training arrangements, earning the Institute over $50,000 in training-fee reimbursables.

Marketing

In 2006, the Marketing Division conducted marketing activities on behalf of 22 seminars and workshops. Marketing activities targeted anatomic and clinical pathologists, radiologists and veterinarians either in practice or serving in residencies. In addition to the design and mailing of 70,000 brochures, numerous advertisements were placed in journals, newsletters, and on websites, including that of the AFIP which provides detailed course information and online registration. This year, approximately 40% (ranging from 15% to 50%) of our registrants came through the internet. To guarantee course information is disseminated to targeted individuals in a timely manner, we are sending out more e-mails, which is more cost effective and as a result attendance has gone up by 45%.

We are continuing to develop and promote our Medical Education Fund to help defray some of the costs associated with conducting our programs. The fund seeks grants and exhibitors to help defray the costs of preparing syllabi, producing brochures, and marketing upcoming

courses. We have enlisted support from the American Registry of Pathology, the Henry Jackson Foundation and T.R.U.E. Research Foundation to help us raise funds from the commercial sector.

Deployments

R Sutton

1. January 2006: Washington, DC, TRICARE Annual Meeting, staff of AFIP exhibit.
2. February 2006: Atlanta, Ga, United States and Canadian Academy of Pathology (USCAP), staff of AFIP exhibit.
3. April 2006: Washington, DC, Automated Cancer Tumor Registry (ACTUR), Marketing Specialist.
4. July 2006: San Antonio, Tex, Association of the United States Army (AUSA) Medical Symposium and Exhibition, staff of AFIP exhibit.
5. July 2006: Washington, DC, International World Cancer Congress (IWCC), staff of AFIP exhibit.
6. August 2006, Albuquerque, NM, Force Health Protection (FHP), staff of AFIP exhibit.
7. September 2006, Montreal, Quebec, Canada, International Academy of Pathology (IAP), staff of AFIP exhibit.
8. November 2006, San Antonio, Tex, Association of Military Surgeons of the United States (AMSUS), staff of AFIP exhibit.

AUDIOVISUAL DIVISION

In FY 2006, the Audiovisual Section supported over 16 courses for the AFIP continuing medical education courses held in the Washington metropolitan area. The division supported other AFIP activities in-house: 30 Weekly Professional Staff Conferences, 12 HIPAA training sessions, 8 EEO training, 8 Newcomers briefings, and 6 Ethics training sessions, as well as military training, retirements and promotions ceremonies.

The audiovisual section moved all equipment and office from the ground level to the basement level in November 2006.

We supported a number of training activities for Walter Reed Army Medical Center (WRAMC) including:

1. Medical Management of Chemical & Biological casualty Course (MMBC)
2. Medical Emergency Ionizing Radiation Courses (MEIR)
3. Military Training for the troops (WRAMC)

In FY 2006 we purchased two audio mixers and two microphones.

1. PROPERTY VALUE
   a. $ 205,110.00
   b. 118 items listed on hand receipt
2. AUDIOVISUAL PROPOSED BUDGET
   a. Equipment replacement ..... $ 7,550.00
   b. Supplies ..... $ 1,460.00
   c. Maintenance/Repair ..... $ 2,500.00
   Total ..... $ 11,510.00
3. A/V Requests for Support 284

ASH LIBRARY

IMPACT

The mission of the Library is to maintain a customer-friendly environment and to help the AFIP staff find what they are looking for in the collection. Ash Library subscribes to 317 printed journals. For the library users who prefer to use our electronic resources via their PC's, we provide online access to 177 journals. In addition, Ash Library also subscribes to ProQuest Health and Medical online database which gives access to 1,306 online journals, 980 of which have full text. Our goal is to quickly resolve problems accessing online journals, which usually happens when the publishers change the terms and conditions regarding

online access to their publications. The library has 4,379 book titles in the collection. We encourage our users to give their suggestions regarding acquisition of new books and journals in the library, and if funds are available, we act upon their requests.

ACCOMPLISHMENTS

1. To try to find a governmental agency which would accept the back issues of our journals which were in storage and were being discarded because of lack of space in the Library, contacted and transmitted list of back-issued of journals to the Library of Congress, National Library of Medicine and US Book Exchange. For various reasons, no one wanted to accept the collection.
2. Acquired WHO Classification of tumors fascicles, which were missing in our collection and cataloged them as a set so that they can be located easily.
3. Cleared backlog of uncataloged books.
4. Added online access to frequently requested journal titles through OVID and OCLC.

INTERLIBRARY LOANS ASH LIBRARY STATISTICS

Circulation:

Checked out 193
Checked in 210
Renewed 112

Interlibrary Loans:

Borrowed 1,629
Loaned 32

Acquisitions:

Book titles received 82
Serial titles deleted 1
Serial titles added 0

DTIC Searches. 7

Collections

Total book titles 4,379
Current print journal titles 317
Online journals available 1,157

DEPARTMENTAL TRAINING STUDY

	Federal Attendees	Non Federal Attendees	Intern'l Attendees	Training Days Fed	Training Days Non-Fed	Training Days International	Units
Armed Forces Medical Examiner	7	0	0	693	0	0	5,544
Cellular Pathology	5	2	0	110	84	0	1,552
Dermatopathology	26	22	2	773	481	63	10,536
GU Pathology & Nephropathology	14	7	1	261	225	19	4,040
Gynecologic & Breast Pathology	6	3	0	70	54	0	992
Hematopathology	4	0	0	306	0	0	2,448
Hepatic & Gastrointestinal Pathology	8	18	3	230	569	144	7,544
Infectious Dis, AIDS & Microbiology	1	2	0	12	33	0	360
Neuropathology & Ophthalmic Path	8	17	0	396	600	0	7,968
Oral Pathology	4	2	0	441	10	0	3,368
Orthopedic Pathology	0	4	0	0	50	0	400
Otolaryngic Pathology	0	1	0	0	11	0	88
Pulmonary & Mediastinal Pathology	4	5	2	60	307	282	5,192
Radiologic Pathology	2	0	0	40	0	0	320
Soft Tissue Pathology	8	12	3	136	353	159	5,184
Telepathology	5	0	0	26	0	0	208
Veterinary Pathology	14	18	3	2,889	166	55	24,880
SUBTOTAL	116	113	14	6,443	2,943	722	80,624
TOTAL			243			10,108	80,624

LONG COURSES

	Federal Attendees	Non Federal & International Attendees	Federal Training Days	Non Federal & International Training Days	Units
Anatomic Pathology	34	100	170	500	5,360
Basic Sciences ENT	6	10	90	150	1,920
Radiologic Pathology	8	243	264	8019	66,264
Radiologic Pathology	15	250	405	6750	57,240
Radiologic Pathology	12	257	348	3084	27,456
Radiologic Pathology	14	187	406	2,618	24,192
Radiologic Pathology	8	243	232	6,786	56,144
SUBTOTAL	97	1,290	1,915	27,907	238,576
TOTAL		1,387		29,822	238,576

SHORT COURSES

	Federal Attendees	Non Federal & International Attendees	Federal Training Days	Non Federal & International Training Days	Units
Pathology in the Management of Head & Surgery Patients	1	6	4	24	1,260
21st Annual Washington Neuroradiology	29	98	58	198	2,032
44th Annual Neuropathology Review	21	143	105	715	6,560
43rd Annual Forensic Identification & Emerging Technologies	79	54	395	271	5,320
Update of Renal Biopsies & Medical Renal Disease	8	21	24	63	696
Sexual Assault Response Team Training Program	104	27	760	280	5,240
Forensic Toxicology Case Studies and Drug Related Litigation	36	0	108	0	864
Abdominal Imaging Course	0	35	0	217	280
15th Descriptive Veterinary Path	17	72	85	360	3,560
19th Annual Forensic Anthropology	9	57	45	285	2,640
40th Annual Urological Pathology & Radiology Course	12	36	60	180	1,920
Musculosketal Radiology	15	10	75	50	1,000
Neuroradiology Review in Radiologic Pathologic Correlation	2	19	10	95	840
Air Force Medical Forensic Sustainment Support Team Training	16	0	80	0	640
17th Annual GI Surgical Path & Endoscopic Biopsies of the GI Tract	22	84	44	168	1,692
27th Annual Hepatopathology: The Interpretation of Liver Biopsies	23	81	69	243	2,496
Ophthalmic Pathology for Ophthalmologists	21	84	105	420	4,200
Surgical Oral & Maxillofacial Pathology	2	36	6	108	912
Clinical Oral & Maxillofacial Path	2	36	2	36	304
Pediatric Imaging Review in Radiologic Pathologic Correlation	0	9	0	45	360
Basic Forensic Pathology	35	56	175	280	3,640
SUBTOTAL	454	964	2,210	4,038	46,456
TOTAL	454	1,418	6,248		46,456

VIDEO TELECONFERENCE

	Non Federal	Federal Attendees & International	Units
Pulmonary Hypertension	5	0	5
Military Cancer Institute	9	0	9
Small B Cell Lymphomas	34	0	34
Mediastinal Pathology	21	0	21
Lab Appr to Liver Disease	12	0	12
Viral Hepatitis	38	0	38
Carcinoids in the GI Tract	18	0	18
Small B Cell Lymphomas	8	0	8
Introduction to Neuropathology	9	0	9
Ovarian Tumors	11	0	11
Patient Safety	16	0	16
Thyroid FNA	7	0	7
Infections in Returning Travelers	17	0	17
Medical Foreign Bodies	23	0	23
Nerve Sheath Myxoma	5	0	5
Neoplasms of the Liver	23	0	23
Jaw Cysts	24	0	24
Postmortem Changes	16	0	16
Pneumonia	31	0	31
Acid-Base Balance	14	0	14
TOTAL	341	0	341

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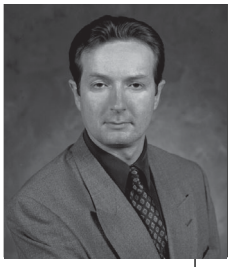
YEAR-ROUND TRAINING/EDUCATION

	Total Attendees	Days	Units	Hours Units
Legal Medicine Open File	4,061	2,538.125	5	20,305
Weekly Professional Staff Conference	721	26	1	721
Histopathology Quality Assessment Program	245	490	16	3,920
Virtual Gastrointestinal Endoscopic Biopsy	38	21.875	5	175
Online Urologic Pathology Series	14	3.5	2	28
Registry of Oral & Maxillofacial Pathology	42	63	12	504
Callender-Binford	12	1,504	8	12,032
TOTAL	5133	4,646.5	85	37,685

TOTAL NUMBER OF ATTENDEES/DAYS/UNITS

	Attendees	Days	Units
GRAND TOTALS	8,385	44,396.5	403,682



Bruce H. Williams, DVM, DACVP
Chair
Date of Appointment —1 October 1997

DEPARTMENT OF TELEMEDICINE

STAFF

Medical

Bruce H. Williams, DVM, DACVP
Ann M. Nelson, MD

Administrative

Daniel R. Butler, HMC, Systems Administrator
Roderick F. Herring, Senior Technical Support Services Specialist
David Draley, Web Developer
George P. Bessey, YN3, Support Services Specialist
(D) Michele B. Richman, Supervisory Online Publisher/Editor
(D) Bonnie Casey, Online Editor
Jason Siedor, Online Publisher
Kevin Jones, Online Publisher

IMPACT

- The AFIP's electronic consultation program continues to be the largest of its kind in the world, as well as the most efficient in terms of case turnaround time and scope of services provided. The AFIP telepathology program became the first of its kind to employ virtual slide scanning as a diagnostic tool. Slides are scanned at remote sites, and AFIP staff, upon case submission, transfer the whole slides to the AFIP servers, decreasing the amount of time AFIP consultants spend viewing and manipulating slides. In addition, the 50-slide loaders associated with deployed systems allow AFIP pathologists to view multi-slide cases, which often include multiple recuts at varying levels, as well as a range of special stains. The end result is an overall improvement of diagnostic specificity, with a decrease in diagnostic deferral from 7% in 2005 to 4%, and a decrease in request for follow-up material from 71% in 2005 to 52% in 2006.
- In 2005, the Department assumed management of the Army Telepathology program from Walter Reed Army Medical Center. As part of this program, AFIP personnel provide all installation and troubleshooting services for this program. AFIP personnel traveled to all 11 installation sites, to include the 10th Combat Support Hospital in Baghdad, the 121st General Hostpial in Seoul, and Landstuhl Regional Medial Centers and Army facilities in Wuerzberg and Heidelberg, FRG. The Department was awarded an additional $125,000 for maintence contracts on deployed systems in 2006 under the Army's Advances In Medical Practice (AMP) program.
- In 2006, the Department premiered version 21 of "Ask AFIP™", linking the various knowledge bases and collections of case materials and authoritative resources published by AFIP staff (including the 3rd and 4th Series of AFIP/ARP Tumor and Non-Tumor Fascicles) to provide an innovative "just-in-time" educational experience to pathologists, radiologists and related specialists in both the military and civilian medical communities. Version 2 includes the improved digital case repository, in which AFIP subject matter experts combine brief synopses of important disease entities, a wide range of pathologic and radiologic imagery, and links into PubMed articles and well-known medical texts, as well as a CME tracking model unique to the field. Extensive work on version 3, to include incorporation of all online courses, was completed for rollout in Spring 2007.

- A total of 5 virtual-slide based courses or conferences (Wednesday Slide Conference, Histopathology Quality Assurance Program, Anatomic Pathology, Genitourinary Pathology, and the Registry of Oral and Maxillofacial Pathology Slide Conference) were offered online in 2006. The Department also provided online versions and portals for the American Registry of Pathology's 3rd and 4th series of the Atlas of Tumor Pathology, as well as the Atlas of Non-tumor Pathology, and the WHO Fascicles on Neoplasia of Domestic Animals. All of the Institute's online offerings, as well as any associated CME, are available to military healthcare providers free of charge. Select offerings, including access to all of our slide-based online courses are available to other government and civilian healthcare providers for a nominal fee.
- The Department continues to provide a wide range of virtual slide scanning for a variety of Institutional missions, including cases in which contributors would like blocks returned, various intramural research projects, and online consensus conferences.

MISSION

The AFIP Department of Telemedicine supports and enhances the missions and strategic goals of the Armed Forces Institute of Pathology and the American Registry of Pathology by evaluation and distributed deployment of emerging telecommunications technology within the Institute environment. In this fashion, the department maximizes the cost-effectiveness, speed of delivery, and quality of health care services and educational opportunities provided by AFIP personnel, and serves as a fertile testbed for new and innovative usage of emerging technology.

DIAGNOSTIC CONSULTATION

Cases	*Completed*
Military	582
Federal (VA)	15
Civilian	32
Total	629

Overall cases increased by 82% over 2005. Military cases showed a sharp increase in cases as deployment of new slide scanners to 11 Army pathology laboratories under a $1.1M grant resulted in a sharp increase in both traditional complex consultative cases, and more routine quality assurance cases from smaller pathology facilities. A marked increase in DoD-wide network security, resulting in the installation of CAC-card software and often CAC-card readers on deployed systems resulted in prolonged downtime on many of these systems, as the software resulted in platform instability on the server software. The drop in civilian and VA cases was presumably multifactorial in nature, likely from uncertainty about the AFIP's status as a result of the DoD's recommendation under BRAC and the establishment of rigid pricing schedules for civilian cases,

Average turnaround time for 2006 for consultative cases increased to approximately 3.5 hours, largely as a result of the increased numbers of slides per case facilitated by the slide loaders incorporated with the new slide scanning systems. These numbers represent a continued focus on a militarily-relevant mission and improved overall cost-containment for the telemedicine mission.

EDUCATION

Presentations and Seminars

Department personnel gave a total of 76 hours of presentations for a total of over 3300 contact hours.

Courses

Department personnel participated in a total of 10 courses.

Educational Aids

The Department of Pathology provided updates or original design to 22 AFIP Web sites, provided extensive content to 6 AFIP sites, and provided extensive programming and editing services to the Digital Case Repository and online book offerings of AskAFIP™.

49 editions of the ARP 3rd and 4th series Tumor Fascicles as well as the Non-tumor fascicles, WHO Fascicles on Neoplasms of Domestic Animals, and 1 special publication, the Atlas of Gastrointestinal Endoscopy and Endoscopic biopsy were made available to online subscribers of the AFIP's Online Pathology Services.

Trainees

The AIDS Division hosted a Public Health Service Pathologist, 1 Red Cross Volunteer and 1 high school summer student.

Telemedicine Exhibits

1. February 2006: USCAP Meeting, Atlanta, Ga, March 2005 (DR Butler, K DaCosta).
2. May 2006: American Telemedicine Association Annual Meeting, San Diego, Calif (BH Williams, DR Butler).
3. August 2006: Force Health Protection Conference, Albuquerque, NM (D Draley, K Jones).
4. October 2005: Association of the United States Army, San Antonio,Tex, (DR Butler, D Draley).
5. November 2006: Association of Military Surgeons of the United States, San Antonio, Tex (DR Butler).

Presentations:

1. February 2006: Bethesda, Md, NIH Clinical Center, "The pathologist's view of the immunology of HIV," AM Nelson.
2. February 2006: Atlanta, Ga, USCAP, "AIDS in the era of HAART," AM Nelson.
3. March 2006: Washington DC, Gross Morbid Anatomy of Diseases of Animals: Macroscopic Description in Veterinary Pathology." BH Williams.
4. March 2006: George Washington University School of Medicine, "The pathology of antiretroviral therapy," AM Nelson.
5. April 2006: Duke University School of Medicine, "Review of infectious disease pathology, AM Nelson.
6. June 2006: Washington DC, "Macroscopic and microscopic description in veterinary pathology," BH Williams.
7. June 2006: Duke University School of Medicine, "Review of infectious disease pathology, AM Nelson.
8. June 2006: Budapest Hungary, European Congress of Telepathology, "Reinventing consultation and education at the AFIP: use of virtual slides," BH Williams.
9. June 2006: Washington DC, "AFIP Weekly Professional Staff Conference," BH Williams.
10. July 2006: Baltimore, Md, The Johns Hopkins School of Public Health Course, "AIDS pathology," AM Nelson.
11. July 2006: Toronto Canada, International Ferret Congress, "Weird, wild, and wonderful: amazing ferret cases from the AFIP archives," BH Williams.
12. August 2006: Washington DC, AFIP VTC Grand Rounds, "Infections in immigrants and returning travelers," AM Nelson.
13. September 2006: Burlington, VT, University of Vermont, "AIDS in the era of HAART," AM Nelson.
14. October 2006: San Diego, Pathology Visions: "Reinventing consultation and education at the AFIP," BH Williams.
15. December 2006: Tucson, Ariz, ACVP, Work-Life Issues and Best Practices for Gevernment-Employed Pathologists, B. Williams.
16. December 2006: Tucson, Ariz, "Virtual Slides in Consultation at the Armed Forces Institute of Pathology," BH Williams.

RESEARCH

Publications

Departmental staff prepared 1 referreed journal article and 5 course syllabi during the year 2006.

Projects

One active research protocol was conducted in the department during this time – UBYG. Telepathology Consultation at the AFIP has to date resulted in 5 articles on telepathology and digital imaging, and is currently providing raw data for a sixth.

Collaborators

Military/Federal

1. Department of Pathology, Keesler AFB: Feasibility study of telepathology in the Air Force.
2. NASA: Feasibility study of virtual slides in aerospace research.
3. USUHS: Feasibility of virtual slide study sets in undergraduate education.

4. NCI: Familiar testicular cancer: a virtual consensus conference.

Civilian

1. American Registry of Pathology: Online Fascicles of Tumor Pathology.
2. American Telemedicine Association: Telemedicine Special Interest Working Group.
3. Illumea Corporation: Feasibility Study of Realtime Pathology Consultation.
4. Aperio Inc: Feasibility Study of Virtual Slide Scanning in Consultative Practice.
5. Information Manufacturing Corporation: Ask AFIP™.

International

Danish Veterinary Institute, Aarhus DK: Immunophenotyping of ferret lymphoma.

Interdepartmental

1. Department of Genitourinary Pathology: Familial testicular neoplasia.
2. Department of Hepatic and Gastrointestinal Pathology: Fibrosis in patients with infectious hepatitis.

PROFESSIONAL ACTIVITIES

Official Trips

1. February 2006: Tampa, Fla, American Board of Pathology, AM Nelson.
2. February 2006:Atlanta, Ga, USCAP, AM Nelson.
3. February 2006: Ft Campbell, KY, Ft Eustis, Va, System install, DR Butler, RF Herring.
4. March 2006: TAMC, Hawaii, 121st General Hospital, Seoul Korea - System install, DR Butler.
5. April 2006: 10th CSH, Baghdad, Ft Benning - System install, Williams, DR Butler.
6. May 2006: MAMC, Seattle, Wash, System install, DR Butler, J Siedor.
7. May 2006: Washington DC, Global Health Council, AM Nelson.
8. June 2006: MAMC, Seattle, Wash, LRMC, Wuerzburg, Heidelburg - System install, DR Butler, J Siedor.
9. June 2006: Atlanta, Ga, SNOMED Anatomic Pathology Group, AM Nelson.
10. September 2006: Montreal, Quebec, Canada, IAO, BH Williams, AM Nelson, DR Butler.
11. December 2006: Chicago, Ill, ASCP Institute Advisory Group, AM Nelson.

Committees:

1. Oversight Committee on Continuing Medical Education, AM Nelson (Chair), BH Williams.
2. Biosafety Committee, AM Nelson.
3. IACUC Committee, BH Williams.
4. IM/IT Steering Committee, BH Williams.

Offices/Committee Memberships in National or International Societies

1. Semifinalist, Robert Wood Johnson/IOM Health Policy Fellowship, AM Nelson.
2. President, CL Davis Foundation for the Advancement of Veterinary Pathology, BH Williams.
3. President, History of Pathology Society, AM Nelson.
4. Member-at-large (United States and Canadian Academy of Pathology), Organizing Committee, Convenor AIDS Pathology Session, International Academy of Pathology 100th Anniversary Congress, AM Nelson.
5. Member, SNOMED Pathology Convergent Terminology Group, AM Nelson.
6. Member, Test Committee, Medical Microbiology, American Board of Pathology, AM Nelson.
7. Convenor, Telemedicine Symposium, International Academy of Pathology, BH Williams.
8. Convenor, Emerging Technology Symposium, American College of Veterinary Pathology, BH Williams.
9. Member, Education Committee, American College of Veterinary Pathologists, BH Williams.

Editorial

1. *Clinical Infectious Diseases*, histopathology editor, AM Nelson.
2. *Annals of Diagnostic Pathology*, section editor, AM Nelson.
3. *Pathology Research and Practice*, member, editorial board, AM Nelson.
4. *Veterinary Pathology*, member, editorial board, BH Williams.
5. *Pathology – Research and Practice,* member, editorial board, AM Nelson.
6. *Veterinary Pathology*, member, editorial board, BH Williams.

Manuscripts Reviewed

Members of the department reviewed 27 articles for the following professional journals:

1. *Veterinary Pathology*, BH Williams.
2. *Human Pathology*, BH Williams.
3. *Global Health Council*, AM Nelson.
4. *Pathology – Research and Practice*, AM Nelson.

Glenn D. Sandberg, COL, MC, USA
Chair
Date of Appointment — October 2001

DEPARTMENT OF SCIENTIFIC LABORATORIES

STAFF

Professional/Scientific

Glenn D. Sandberg, COL, MC, USA, Chair
Wei-Sing Chu, MD, PhD, Chief, Immunohistochemistry

Administrative/Technical

Arnicia E. Downing, Chief, Scientific Labs

ORGANIZATION

The Department of Scientific Laboratories comprises14 divisions:

- Acquisitions Lab
- Grossing Lab
- Microtomy Lab
- Special Stains Lab
- General Immunohistochemistry Lab
- Special Immunohistochemistry Lab
- Hematopathology Lab
- Genitourinary Lab
- Neuromuscular Lab
- Tissue Microarray Lab
- Electron Microscopy Lab
- Tri-Service School of Histotechnology
- Molecular Pathology Lab
- Glassware

IMPACT

The Department of Scientific Laboratories provides technical, consultative, and scientific services to the pathology departments of the AFIP, supporting the Institute's mission of consultation, education, and research. Services include basic and advanced histology procedures, immunohistochemistry, transmission electron microscopy, tissue microarray techniques and molecular diagnostics. The department provides basic and advanced training in histology techniques to military and civilian personnel through the Tri-Service School of Histotechnology. All efforts are designed to ensure the highest medical and investigative science.

HISTOPATHOLOGY LABORATORIES

Arnicia E. Downing
Laboratory Chief
Date of Appointment — 23 September 1991

STAFF

(D) Rosanna Bailey, DAC, Histopathology Technician
George Barbour, HM1, Histopathology Technician
Betty Beal, VAMC, Histopathology Technician
(D) Mildred Benton, ARP, Histopathology Technician
Freda Blake, VA, Histopathology Technician
(D) Robert Calvo, HM2, Histopathology Technician
Mel Castro, DAC, Histopathology Technician
(D) Timothy Davidson, USAF, Histopathology Technician
Mary Dyson, ARP, Histopathology Technician
Zahaitu Harvey, ARP, Histopathology Technician
(D) Francine Hincherick, DAC, Histopathology Technician
(D) Shirley V. Horton, ARP, Histopathology Technician
(D) Brian Johnson, SSgt, USAF, Histopathology Technician
Ingrid Jones, DAC, Histopathology Technician
(D) Clementine Kelson, ARP, Histopathology Technician
Wanda King, DAC, Histopathology Technician
Langston Lim, DAC, Histopathology Technician
(D) Charles Lattany, SSgt, USAF, Superintendent, Tri-Service School
(D) Wilbur Maravilla, ARP, Histopathology Technician
(D) Alejandro Morales, HM1, Histopathology Technician
Debra A. McElroy, DAC, Quality Assurance Supervisor
Warren McNeil, DAC, Histopathology Technician
Myra Miller, DAC, Histopathology Technician
Barbara Norfleet, DAC, Histopathology Technician
Oliver Onyebuchykwu, ARP, Histopathology Technician
Verna Pinkett, DAC, Histopathology Technician
(D) Michael Proctor, DAC, Histopathology Technician
Juanita Rogers, ARP, Histopathology Technician
(D) Joseph Rosamont, VA, Histopathology Technician
Blair Slaughter, ARP, Histopathology Technician
Blondell Smith, DAC, Histopathology Technician
Stacey Tamer, DAC, Histopathology Technician
Michael Vick, HM2, USN, Histopathology Technician
Julia Wilson, DAC, Program Director
James Hughes, DAC, Histopathology Technician
(D) Robert Wilson, DAC, Histopathology Technician
Raheema Al-Baqi, VA, Acquisitions Supervisor
(D) Nawere Haque, ARP, Data Entry Technician
Rick Figueroa, SSgt, USAF, Histopathology Technician
(D) Quentin Nick, SPC, USA, Histopathology Technician
(D) Linda Savoff, SSgt, USAF, Histopathology Technician
Rafael Tirado, SRA, USAF, Histopathology Technician
(A) Joe Golden, TSGT, Histopathology Technician
(A) Tashanda Ashford, SSGT, Histopathology Technician
(A) Denise Griggs, SSGT, Histopathology Technician
(A) Alicia Fuller, SSGT, Histopathology Technician
(A) Stacid Chandler, HM2, Histopathology Technician
(D) Richard Stapp, PVT, USA, Histopathology Technician

(D) Kelli Davidson, ARP, Histopathology Technician
(D) Tameka Newford, HM2, USN, Histopathology Technician
(D) Sylvia Cordero, SrA, USAF, Histopathology Technician
(D) John Stokes, SGT, USA, Histopathology Technician
(D) Artie Walker, SPC, USA, Histopathology Technician
Leroy Irby, HM2, Histopathology Technician
Min-Qi Wei, ARP, Histopathology Technician
Lin Xi, ARP, Histopathology Technician
Frank Avallone, DAC, Histopathology Technician
(D) Rex Hartzoge, DAC, Histopathology Technician
Ives Valenzuela, DAC, Histopathology Technician
Muhammed Waheed, ARP, Histopathology Technician
Lisa Myers, MSGT, Superintendent
(A) Denise Negron, HM3, Histopathology Technician
Samantha Karn, GWOT, Histopathology Technician
Qi Liang, ARP, Scientist
Mark Malogrino, SRA, Histopathology Technician
(A) Shaquita Massey, ARP, Acquisition Clerk
(A) Roneice James, ARP, Acquisition Clerk
Elizabeth Harvell, ARP, Glassware Technician

IMPACT

The Histopathology Laboratories provide histotechnical support and expertise to the pathology departments at the AFIP and training in histotechniques to visiting professionals and technologists. To insure that the laboratories are capable of fully meeting their mission, every aspect of the operation of the laboratories is inspected by representatives from the College of American Pathologists (CAP).

In 2006, 30,500 work orders were completed, requiring the following procedures and special stains:

Blocks cut	111,746
Slides cut	290,912
H&E stains:	70,907
Special stains:	22,633
Unstained:	111,111
Immunostained:	86,261
Orthopedic plastics	12
Decals	215
X-rays	56

Deployments

All military histotechnologists routinely rotated to the Dover Mortuary in support of the OAFME's operational missions.

EDUCATION

Courses

1. Laboratory staff presented 60 didactic hours to participants in the Tri-Service School of Histotechnology course.
2. Several staff members lectured at state and regional professional meetings.
3. Division staff made presentations at Weekly Professional Staff Conferences.

Training

Departmental staff provided visiting pathologists and technologists with over 1,500 hours of training in a variety of laboratory techniques, including eye histotechnology, special staining methods for infectious organisms, and Warthin-Starry procedures for melanin and bacteria. Orientation and advanced training were provided to 4 civilians and 25 incoming military personnel.

RESEARCH

Projects

Our laboratories provided technical support for all approved research projects. Cost estimates are now prepared based on CAP's workload unit costs, which include technician time, materials, and equipment.

TRI-SERVICE SCHOOL OF HISTOTECHNOLOGY

STAFF

Julia Wilson, BS, HT (ASCP)
Program Director
Date of Appointment – March 1997

Lisa Myers, MSGT, USAF
Course Superintendent
Date of Appointment – June 2005

George Barbour, HM1, USN
LPOIC of Student Training

IMPACT

- The Tri-Service School of Histotechnology is the only military histopathology training program. It provides formal training to military and civilian students in the technical operations of anatomic pathology, as applied to the histopathology laboratory and post-mortem procedures.
- The histology school convened 1class in 2006, consisting of 180 training days. Training includes instruction in the theory and application of histotechnology and practical training in the fixation, processing, embedding, microtomy and staining of tissue specimens, microscopic tissue identification and assistance in postmortem examination. Practical training includes clinical rotations in a variety of AFIP and affiliated military laboratories.
- The course is administered by the Department of Scientific Laboratories and is coordinated through the School of Health Care Science at Sheppard AFB, Texas and the Naval School of Health Sciences at the National Naval Medical Center, Bethesda. Affiliates also include the departments of Anatomic Pathology at WRAMC, NNMC, and Malcolm Grow Medical Center, Andrews AFB.
- The Tri-Service School of Histotechnology is accredited by the National Accrediting Agency of Clinical Laboratory Sciences (NAACLS), which is sponsored by the American Society of Clinical Pathology (ASCP) and the American Society for Clinical Laboratory Science. The National Society of Histotechnology is a participant of NAACLS.
- Graduates of the Tri-Service School of Histotechnology are awarded certificates and AFSC 4T032 (Air Force) and NEC 8503 (Navy) classification codes. Army members are also trained, but there is currently no histotechnician career field classification. Graduates are eligible to apply to take the ASCP, HT certification examination.

Students Trained in 2006

Navy	3
Air Force	11
Civilian	2

Workload Completed

Blocks	656
H&Es	706
Specials	68
Unstained	253
Immuno	98
Total slides	1,125
Controls	1,432

ELECTRON MICROSCOPY LABORATORY

STAFF

Mel Castro
Chief
Date of Appointment – January 2006

IMPACT

We provide technical and scientific services to the departments of the AFIP, supporting the professional staff in consultation, research, and education using advanced technology in transmission electron microscopy (TEM).

CONSULTATION

We have 2 high-resolution (ZEISS-10A) electron microscopes, one of which is equipped with a state-of-the-art digital photography system.

Transmission Electron Microscopy

Work orders completed 403
Blocks cut 2,154
Grids cut 1,860
Photographs taken 3,607
CD's produced 465
Total microscope usage ..... 422.25 hrs

IMMUNOHISTOCHEMISTRY LABORATORY

Wei-Sing Chu, MD, PhD
Chief
Date of Appointment – September 2003

STAFF

Administrative/Technical

Stacey Tamer, DAC, Supervisor, General Immunohistochemistry
Wanda King, ARP, Supervisor, Special Immunohistochemistry
Min Qi, ARP, Supervisor, Hematopathology
Frank Avallone, DAC, Genitourinary Pathology

IMPACT

The Immunopathology Laboratory provides state-of-the-art immunohistochemical staining in support of diagnostic and prognostic markers in case consultation and Institute research. Our secondary mission is to develop advanced tissue diagnostic techniques.

Workload Completed

General Immunohistochemistry

Work orders 4,270
Slides stained 42,966

Special Immunohistochemistry

Cases 4,161
Slides stained 12,850

Hematopathology Laboratory

Cases 4,270
Slides stained 30,766

Genitourinary Laboratory

Cases 2,209
Work orders 2,434

RESEARCH

Journal Article

Chu WS, Liang Q, Tang Y, King R, Wong K, Gong M, Wei M, Liu J, Feng SH, Lo SC, Andriko JA, Orr M. Ultrasound-accelerated Tissue Fixation/Processing Achieves Superior Morphology and Macromolecule Integrity with Storage Stability. *J Histochem Cytochem*. 2006;54(5):503-513.

NEUROMUSCULAR LABORATORY

Valenzuela Ives
Supervisor
Date of Appointment – January 2003

Workload Completed

Work orders	407
Frozen specimens	382
Formalin-fixed specimens	364
Slides stained	4,584
Glutaraldehyde-fixed specimens	3,196
EM blocks cut	498

ACQUISITIONS LABORATORY

Raheema Al-Baqi
Supervisor
Date of Appointment – January 2003

Workload Completed

Work orders processed	30,500

GROSSING LABORATORY

Warren McNeil
Supervisor
Date of Appointment – January 2003

Workload Completed

Wet tissue specimens processed	42,910

GLASSWARE

Elizabeth Harvell
Supervisor
Date of Appointment – January 2003

Workload Completed

Glassware items processed	57,600

TISSUE MICROARRAY LABORATORY

STAFF

Iren Horkayne-Szakaly, MD, Lead Pathologist, Date of Appointment — July 2006
Darius Amjadi, MAJ, MC, USA, Staff pathologist
Langston Lim, Supervisor, Date of Appointment — October 2006

IMPACT

The tissue microarray core laboratory was organized in 2006 and provides state-of-the-art tissue array support of intra- and extramural research activities. This unique laboratory consists of 2 automated tissue arrayers and 3 manual arrayers. Automated image analysis of stained microarrays is also provided. Current projects include construction of 3 custom 400 core arrays in support of cutting-edge molecular research performed by Walter Reed Army Medical Center's Gynecology Oncology Group.

MOLECULAR PATHOLOGY LABORATORY

STAFF

Sherman McCall, LTC, MC, USA, Pathologist
Guanghua Wang, MD, Pathologist
Wei-Sing Chu, MD, PhD, Research Scientist
Jean Przybocki, Medical Technologist
Daisy Johnson, Medical Technologist
Mark Tsai, Research Biologist

Workload completed:

Cystic fibrosis: 15,026
Consultation: 1,237
Total Workload: ..... 16,263 cases

Publications

Journal Articles

1. Baas T, Taubenberger JK, Chong PY, Chui P, Katze MG. SARS-CoV virus-host interactions and comparative etiologies of acute respiratory distress syndrome as determined by transcriptional and cytokine profiling of formalin-fixed paraffin-embedded tissues. *J Interferon Cytokine Res*. 2006 May;26(5):309-317
2. Morens DM, Taubenberger JK., Influenza and the origins of The Philips Collection, Washington, DC. *Emerg Infect Dis*. 2006 Jan;12(1):78-80.
3. Stevens J, Blixt O, Glaser L, Taubenberger JK, Palese P, Paulson JC, Wilson IA., Glycan microarray analysis of the hemagglutinins from modern and pandemic influenza viruses reveals different receptor specificities. *J Mol Biol*. 2006;355(5):1143-1155. Epub 2005 Nov 18.
4. Stevens J, Blixt O, Tumpey TM, Taubenberger JK, Paulson JC, Wilson IA, Structure and receptor specificity of the hemagglutinin from an H5N1 influenza virus. *Science*. 2006 Apr 21;312(5772):404-410. Epub 2006 Mar 16.
5. Taubenberger JK, Morens DM. Influenza revisited. Emerg Infect Dis. 2006 Jan;12(1):1-2.
6. Taubenberger JK, Morens DM., 1918 Influenza: the mother of all pandemics. *Emerg Infect Dis*. 2006 Jan;12(1):15-22.

Abstract

Vilensky J; McCall S; Gilman S. "Encephalitis lethargica and influenza: was there a relationship?" International Society for the History of the Neurosciences, 12th Annual Meeting, Los Angeles CA, 19-23 June 2007.

Meetings:

Three staff members attended the Association of Molecular Pathology Meeting.
One staff member was awarded the Surgeon General's A designator.

Angela D. Levy, LTC (P), MC, USA
Chair
Date of Appointment – 2 May 2005

William D. Craig CDR, MC, USN
Chairman
Date of Appointment—11 December 2006

DEPARTMENT OF RADIOLOGIC PATHOLOGY

ORGANIZATION

The department is organized into 7 sections and the Office of the Chairman.

- Gastrointestinal Radiology
- Genitourinary Radiology
- Musculoskeletal Radiology
- Neuroradiology
- Pediatric Radiology
- Pulmonary and Mediastinal Radiology
- Forensic Radiology

STAFF

Medical

(A) William D. Craig, CDR, MC, USN Chairman and Chief, Genitourinary Radiology
Ellen M. Chung, LTC, MC, USA, Chief, Pediatric Radiology
Aletta A. Frazier, MD, Physician Medical Illustrator, ARP
Jeffrey R. Galvin, MD, Chief, Pulmonary and Mediastinal Radiology, ARP
(D) Michael S. Gibson, LCDR, MC, USN, Musculoskeletal Radiology, MOU-National Capital Consortium
Leonard M. Glassman, MD, FACR, Chief, Mammography, MOU-Washington Radiology Associates, PC
(D) Brian T. Jennings, MD Junior Scientist, Musculoskeletal Radiology, ARP
Howard T. Harcke, COL, MC, USA, Chief, Forensic Radiology
(A) Kelly K. Koeller, FACR, Chief, Neuroradiology
(D) Angela D. Levy, LTC, MC, USA, Chairman and Chief, Gastrointestinal Radiology
(A) Angela D. Levy, LTC, MC, USA, Chief, Gastrointestinal Radiology
(D) Maria Manning, MD, Junior Scientist, Genitourinary Radiology, ARP part-time
Mark D. Murphey, MD, Chief, Musculoskeletal Radiology, ARP
(A) Deborah Rubens, MD, FACR, Distinguished Scientist, ARP
(A) Jorge A Vidal MD, Junior Scientist, Musculoskeletal Radiology, ARP
(D) Paula J. Woodward, MD, Chief, Genitourinary Radiology, ARP

Administrative

Adahlia M. Glover, Case Manager, ARP
Monte Grace, HM2 (FMF), USN, NCOIC, 6-Week Course
(D) Donald F. Hatley, HM1 (FMF), USN, NCOIC, Administrative Support
(A) Donald E. Hatley, Administrator, ARP
(D) Sharon Holquin, Archivist, ARP
Jessica Holquin, Digitization Specialist, ARP
(D) Ingrid Jenkins, Administrative Assistant, ARP
Kathy M. Rahimly, Case Manager, ARP, Part-time
Anika Torruella, Editorial Assistant, ARP
Alethia B. West, Case Management, Supervisor, ARP

Carl D. Williams, 6-Week Course Coordinator and Categorical Course Coordinator, ARP
Ben Yohannes, Systems Manager, Contract Employee

IMPACT

The entire staff of the Department of Radiologic Pathology made significant contributions to the education of military and civilian radiology residents and radiologists' worldwide utilizing radiologic-pathologic correlation and a wide range of military activities affiliated with the AFIP. The department's world-renowned educational program, the Radiologic-Pathologic Correlation Course, was held 5 times in 2006 with 1,255 radiology residents in attendance. Diagnostic radiology residents from all 190 United States residency programs participated in this didactic educational program. Without substantial federal assistance, this financially independent course is the sole source for all of the department's non-military salaries, equipment, and expenditures and generated revenues of nearly $3.3 million. The course also provided over 1,271 new cases to the over 94,000 cases held in the department's archives of radiologic pathologic correlation. This valuable and unique repository is the basis for all of the department's research conducted by the department's faculty, leading to 20 peer-reviewed articles and more than 600 lectures presented in numerous radiological science symposia. The fifth edition of the Radiologic-Pathologic Course's soft cover syllabus was released for public sale in July 2006 and represented a major expansion of this text with 3 volumes, captioned figures, references, and an index. This is the first in the series of books to include a complete electronic file download of the syllabus. This syllabus has been enthusiastically received since inception and hardcover sales continue with vigor. The mission of the department is enhanced through the RadPath Luminary, a quarterly electronic newsletter that is released to more than 18,000 email addresses of radiologists and physicians worldwide. The online educational portal Radiologic Pathology at AskAFIP™ combines the case material, the 2005-2007 Radiologic Pathology syllabus, and scientific articles by the departmental staff into an interactive platform that allows efficient and timely review of a wide variety of topics as well as self-assessment for the user and is currently subscribed by 4,719 members.

DIAGNOSTIC CONSULTATION

The department conducts only intramural radiologic consultation. Radiologic pathology provided 61 man-days of onsite consultation for autopsy at the Dover mortuary in direct support of Operation Iraqi Freedom and Operation Enduring Freedom. Consultation was provided on 1,271 class cases (contributed by residents attending the Radiologic Pathology Correlation Courses) and 457 cases submitted by various AFIP pathology departments.

EDUCATION

Courses

1. AFIP Radiologic Pathology Courses:

- Radiologic Pathology Course: Five courses were conducted in 2006. These were attended by 1,255 radiology residents (55 federal, 1,200 nonfederal). Approximately 145 man-days of training were provided. The course remains subscribed nearly 2 years in advance and is attended by virtually all civilian and military residents from every US diagnostic radiology residency program. Two hundred residents from other countries also attend. The Radiologic Pathology Course is also offered to radiologists who have completed their training. See Presentations for a complete listing of lectures provided by the department staff.
- 1-week categorical courses (held within the Radiologic Pathology Courses): A total of 4 courses (Abdominal Imaging, Neuroradiology, Pediatric Radiology and Musculoskeletal Radiology) offered 138 CME credit hours and were attended by 62 health professionals, who earned a total of 2,224 CME credit hours.

Course	*Enrollment*	*CME credit hours*
Abdominal Imaging	7	217
Neuroradiology	21	798
Musculoskeletal Radiology	25	950
Pediatric Radiology	9	279

- Weekend courses: One course was provided. A total of 128 health professionals attended for a total of 256 attendee-days and 15.5 hours of CME credit was offered for each attendee.

Course	*Enrollment*	*CME credit hours*
21st Annual Washington Neuroradiology Course	128	3,968

2. AFIP Courses in Collaboration with Foreign Radiological Societies
The Department of Radiologic Pathology provided the curriculum and faculty for 4 international short courses held in Spain, Austria, Portugal, and the Netherlands and sponsored by the radiological societies in these locales, in association with the AFIP and the ARP. Members of the department were also featured in specific sections within the course curricula of several major international radiological symposia in Brazil, Japan, France, Germany, Argentina and the Netherlands. These courses ensured dissemination of the principles of radiologic-pathologic correlation to radiologists and physicians that do not traditionally participate in the department's Radiologic Pathology Courses. The courses were extremely well received and it is expected that these will continue on an annual basis. See Presentations for a listing of lectures titles.

3. Radiologic Pathology Participation in Courses Held By Other AFIP Departments
The staff of the Department of Radiologic Pathology provided lectures in courses hosted by ENT Pathology, Neuropathology, Genitourinary Pathology, and the AFIP VTC Grand Rounds Series.

Trainees
Junior Scientists begin a 1-year/post-residency year in graduate medical education in selected subspecialty areas of radiology. The department provided this training to 2 radiologists in the musculoskeletal radiology section under the direction of the section chief, Dr. Mark Murphey, in 2006. Michael S. Gibson, LCDR, MC, USN and Brian T. Jennings, MD completed their Junior Scientist year in June 2006, and Jorge A. Vidal, MD, began his junior scientist year in August 2005. Maria Manning, MD completed her part-time junior scientist position in the genitourinary radiology section in December 2006 under the direction of Dr. Paula Woodward. In addition, research assistants may collaborate on specific projects with the department's medical staff. Dr. Jordi Rimola, a fourth-year radiology resident sponsored by Fundación XIVCongresso Internacional de Radiologia and Sociedad Espanola de Radiologia (SERAM) in Spain, collaborated with Dr. Angela D. Levy, section chief of Gastrointestinal Radiology, on selected projects. CDR David Matthew DeLonga, MC, USN, completed a residency rotation in the Gastrointestinal Radiology section from October, 2006-November 2006.

Faculty Appointments
1. Department of Radiology, Walter Reed Army Medical Center, EM Chung.
2. Clinical Associate Professor, Department of Radiology, University of Maryland Medical System, AA Frazier.
3. Clinical Professor, Department of Radiology, University of Maryland Medical System, JR Galvin.
4. Clinical Professor, Department of Radiology, George Washington University School of Medicine, LM Glassman.
5. Clinical Professor, Department of Radiology, Georgetown University School of Medicine, LM Glassman.
6. Professor of Radiology and Pediatrics, Jefferson Medical College, Philadelphia, Pa, HT Harcke.
7. Adjunct Professor of Radiology and Nuclear Medicine, USUHS, HT Harcke.
8. Senior Associate Consultant, Department of Radiology, Mayo Clinic, Rochester, Minn, KK Koeller.
9. Department of Radiology, Walter Reed Army Medical Center, AD Levy.
10. Chief, Abdominal Imaging, Department of Radiology, USUHS, Bethesda, Md, AD Levy.
11. Associate Professor, Radiology and Nuclear Medicine, USUHS, MD Murphey.
12. Department of Radiology, Walter Reed Army Medical Center, MD Murphey.
13. Professor of Pediatrics, Washington University School of Medicine, St. Louis, Mo, MJ Siegel.
14. Clinical Associate Professor of Radiology, University of Maryland School of Medicine, PJ Woodward.
15. Adjunct Professor of Radiology, University of Utah School of Medicine, PJ Woodward.
16. Adjunct Assistant Professor of Obstetrics and Gynecology, University of Utah School of

Medicine, PJ Woodward.
17. Department of Radiology, National Naval Medical Center, Bethesda Md, WD Craig.

Presentations

The staff of the Department of Radiologic Pathology provided more than 600 presentations during the calendar year, with 395 occurring within the department's 6-week radiologic pathologic correlation course and 18 in support of other courses produced by the institute. Faculty members participated as visiting professors for 19 different academic institutions and delivered 59 presentations in other venues.

AFIP Radiologic Pathology Six-Week Course Lectures

Department of Radiologic Pathology staff in the 6-week Radiologic Pathology Course, held 5 times in 2006, provided the following lectures.

JR Galvin
- An Approach to Diffuse Lung Disease, Sarcoidosis
- The Idiopathic Interstitial Pneumonias
- Airways Disease: The Movement form Anatomic to Physiologic Assessment
- Inhalational Lung Disease (Asbestosis and Silicosis)
- Pulmonary Lymphoid Disorders
- Angiitis and Granulomatosis
- The Pulmonary Complications of Bone Marrow Transplantation
- The Diagnosis of Pulmonary Embolism
- Tuberculosis
- Fungal Disease in the Thorax: Opportunistic and Primary Pathogens
- Bronchogenic Carcinoma: Radiologic-Pathologic Correlation

AA Frazier
- Pulmonary Hypertension
- Pulmonary Metastases

LM Glassman
- Classic Breast Lesions
- Basic Breast Imaging
- Ductal Carcinoma in Situ (DCIS)
- Breast Abnormalities in Young Women
- The Male Breast

AD Levy
- Benign Hepatic Neoplasms
- Malignant Hepatic Neoplasms
- Hepatic Infections
- Chronic Liver Disease
- Benign Biliary Disease
- Biliary Neoplasms
- Pancreatic Neoplasms
- Gastric Malignancies
- Abdominal Manifestations of Non-Hodgkin Lymphoma
- Small Intestinal Neoplasms
- Colorectal Carcinoma
- Mesenteric Masses and Cysts
- Idiopathic Inflammatory Bowel Disease
- Imaging Approach to Inflammatory Disease of the Colon

PJ Woodward
- Imaging of Uterine Disorders
- Renal Neoplasms: Approach to Renal Masses
- Urinary Tract Trauma
- Retroperitoneum
- Radiologic Evaluation of the Scrotum
- First Trimester Ultrasound
- Fetal CNS Malformations

- Fetal Body Anomalies

MD Murphey
- Radiologic Assessment of Joint Replacement and Imaging of Bone Grafts
- Musculoskeletal Manifestations of Chronic Renal Insufficiency
- Musculoskeletal Neoplasm: Fundamental Concepts
- Fundamental Concepts of CT and MRI in Evaluation of Musculoskeletal Neoplasm
- Osteoid Lesions of Bone
- Cartilaginous Lesions of Bone
- Fibrous Lesions of the Musculoskeletal System
- Alphabet Soup and Cystic Lesions of Bone
- Juxtaarticular Masses
- Musculoskeletal Angiomatous Lesions
- Paget Disease
- Musculoskeletal Infection
- Imaging of Cervical Spine Trauma

KK Koeller
- Imaging of Demyelinating Diseases
- Lymphoma and Uncommon Neuroepithelial Tumors
- Cerebral Intraventricular Neoplasms
- Imaging of the Temporal Bone: Anatomy and Congenital Lesions
- Imaging of the Temporal Bone: Infectious and Neoplastic Lesions
- Imaging of the Orbit: The Globe and Conal Lesions
- Imaging of the Orbit: Intraconal and Extraconal Lesions

JG Smirniotopoulos
- Patterns of Location: Infratentorial and Supratentorial Patterns of Enhancement
- The WHO 2000 Brain Tumor Classification
- Non-Astrocytic Gliomas
- Non-Glial Tumors: (exclude Meningioma and Pineal)
- Neoplasms of the Meninges
- Pinealomas and other Pineal Region Masses
- The Phakomatoses

E Chung
- Urinary Tract Infection in Children
- Acute Gastrointestinal Disorders in Neonates
- Acute Gastrointestinal Disorders in Infants and Young Children
- Diseases Affecting the Pediatric Airway
- Vascular Rings and Slings
- Pediatric Cystic Renal Disease

W Craig
- Radiologic Evaluation of Urinary Stone Disease

M Siegel
- Renal and Adrenal Tumors in Children
- Pediatric Pelvic Masses
- Pediatric Bone Marrow
- Congenital Lung Malformations
- Medical Lung Disease in Children
- Imaging of Congenital Heart Disease-Beyond the Plain Film

Department of Radiologic Pathology Courses

January 2006
Tokyo, Japan, The Japan College of Radiology, "Pathways to fibrosis," JR Galvin.

February 2006
Bethesda, Md, 21st Annual Washington Neuroradiology Review Course.

"Patterns of contrast Enhancement," JG Smirniotopoulos.
"CNS Trauma," JG Smirniotopoulos.

"Intraaxial neoplasms," JG Smirniotopoulos.
"Extra axial neoplasms," JG. Smirniotopoulos.
"Phakomatoses," JG Smirniotopoulos.

April 2006
Sao Paolo, Brazil, 36th Jornada Paulista de Radiologia.

"Breast pathology for radiologists."
"Breast lesions in young women," LM Glassman.
"Breast lesions without a differential diagnosis," LM Glassman.
"Breast unknown cases," LM Glassman.
"DCIS," LM Glassman.
"Male breast," LM Glassman.
"Lipomatous tumors of soft tissue" - Part I & II, M Kransdorf.
"MR Imaging of the Shoulder - Part I & II," M Kransdorf.
"Osteonecrosis," M Kransdorf.
"CT of Pediatric Mediastinal Masses Part I & II," M Siegel.
"Ultrasonography of Congenial Brain Anomalies," M Siegel.
"Pediatric Retroperitoneal Masses - Part I & II," M Siegel.

June 2006
Madrid, Spain, Fundación Espanola de Radiología-Armed Forces Institute of Pathology, XVII Curso Internacional de Correlación Radio-Patológica.

"Demyelinating disease," KK Koeller.
"CNS infections," KK Koeller.
"Common neuroepithelial neoplasms," KK Koeller.
"Lymphoma and uncommon cerebral neoplasms," KK Koeller.
"Cerebral intraventricular neoplasms," KK Koeller.
"Spinal cord neoplasms and their mimics," KK Koeller.
"CT of nonvascular pediatric mediastinal masses," M Siegel.
"CTA of mediastinal vascular lesions," M Siegel.
"CTA/MRA of hepatic masses in children," M Siegel.
"Pediatric retroperitoneal masses," M Siegel.
"CT of congenital lung anomalies," M Siegel.
"Musculoskeletal metastatic disease," ME Mulligan.
"Bone and soft tissue tumor analysis," ME Mulligan.
"Upper extremity trauma," ME Mulligan.
"Lower extremity trauma," ME Mulligan.
"Musculoskeletal infection," ME Mulligan.
"Ovary: neoplasms," BJ Wagner.
"Scrotum," BJ Wagner.
"Adrenal," BJ Wagner.
"Uterus: selected topics," BJ Wagner.

Porto, Portugal, Sociedade Portuguesa de Radiologia e Medicina Nuclear (SPRMN)-Armed Forces Institute of Pathology X Curso de Correlação Anátomo Radiológica.

"Demyelinating disease," KK Koeller.
"CNS infections," KK Koeller.
"Common neuroepithelial neoplasms," KK Koeller.
"Lymphoma and uncommon cerebral neoplasms," KK Koeller.
"Cerebral intraventricular neoplasms," KK Koeller
"CT of nonvascular pediatric mediastinal masses," M Siegel.
"CTA of mediastinal vascular lesions," M Siegel.
"CTA/MRA of hepatic masses in children," M Siegel.
"Pediatric retroperitoneal masses," M Siegel.
"CT of congenital lung anomalies," M Siegel.
"Musculoskeletal metastatic disease," ME Mulligan.
"New concepts in imaging of myeloma," ME Mulligan.
"Bone and soft tissue tumor analysis," ME Mulligan.
"Upper extremity trauma," ME Mulligan.

"Lower extremity trauma," ME Mulligan.
"Ovary: neoplasms," BJ Wagner.
"Scrotum," BJ Wagner.
"Non-neoplastic disorders," BJ Wagner.
"Adrenal," BJ Wagner.
"Uterus: selected topics," BJ Wagner.

June 2006
Austria, Österreichische Röntgengesellschaft-Armed Forces Institute of Pathology, 13th Radiologisches Fortbildungsseminar.

"Demyelinating disease," KK Koeller.
"CNS infections," KK Koeller.
"Common neuroepithelial neoplasms," KK Koeller.
"Lymphoma and uncommon cerebral neoplasms," KK Koeller.
"Cerebral intraventricular neoplasms," KK Koeller
"Spinal cord neoplasms and their mimics," KK Koeller.
"CT of nonvascular pediatric mediastinal masses," M Siegel.
"CTA of mediastinal vascular lesions," M Siegel.
"CTA/MRA of hepatic masses in children," M Siegel.
"Pediatric retroperitoneal masses," M Siegel.
"CT of congenital lung anomalies," M Siegel.
"Musculoskeletal metastatic disease," ME Mulligan.
"New concepts in Imaging of myeloma," ME Mulligan.
"Bone and soft tissue tumor Analysis," ME Mulligan.
"Upper extremity trauma," ME Mulligan.
"Lower extremity trauma," ME Mulligan.
"Musculoskeletal infection," ME Mulligan.
"Ovary: neoplasms," BJ Wagner.
"Scrotum," BJ Wagner.
"Ovary: non-neoplastic disorders," BJ Wagner.
"Uterus: selected topics," BJ Wagner.

October 2006
Paris, France, 54th Journees Francaises de Radiologie.

"Lymphoid lesions," JR Galvin.
"Lung cancer," JR Galvin.
"Related interstitial lung disease," JR Galvin.
"Conditions affecting the pediatric airway," "Childhood UTI." E Chung.
"Congenital brain anomalies," E Chung.
"Patterns of contrast enhancement," JG Smirniotopoulos.
"Radiologic grading of astrocytoma," JG Smirniotopoulos.
"CNS trauma," JG Smirniotopoulos.

December 2006
Chicago, Ill, 92nd Scientific Assembly and Annual Meeting of the Society of North America, Special Focus Session.

"Angiomatous lesions," AD Levy, PJ Woodward, JR Galvin, EM Chung, KK Koeller, MD Murphey.

Other AFIP Pathology Departments Courses

February 2006
Washington, DC, WRAMC Delano Hall, 44th Annual Basic Science Course Otolaryngology Head and Neck Surgery.

"Imaging of the suprahyoid neck," KK Koeller.
"Imaging of the infrahyoid neck," KK Koeller.
"Temporal bone anatomy and congenital lesions," KK Koeller.

July 2006
Silver Spring, Maryland, 40th Annual Dr. FK Mostofi and COL CJ Davis, Jr. Urological Pathology And Radiology Course.

"Renal radiology," PJ Woodward.
"Retroperitoneum radiology," PJ Woodward.
"Scrotum/testis radiology," PJ Woodward.
"Congenital, pediatrics, and urinary," PJ Woodward.
"Tract radiology," PJ Woodward.
"Radiology case review," PJ Woodward.

Visiting Professorships

1. February 2006: Philadelphia Pa, Pennsylvania Hospital, "A tuberculosis," JR Galvin.
2. February 2006: Philadelphia Pa, Pennsylvania Hospital, "An idiopathic interstitial pneumonias," JR Galvin.
3. February 2006: Washington, DC, WRAMC Department of Radiology, to radiology residents all years, "Childhood UTI," E Chung.
4. February 2006: Bethesda, Md, USUHS Department of Pathology, to second year medical students, "Pediatric radiology pathology correlation," E Chung.
5. March 2006: Washington, DC, WRAMC Department of Radiology, (2h) to 4th year residents, "Board Review in pediatric radiology," E Chung
6. April 2006: The Shriners Hospital for Crippled Children , Springfield Mass, TH Harcke.
7. May 2006: Washington, DC, WRAMC Department of Radiology, (2h) to 4th year residents, "Board review in pediatric radiology," E Chung.
8. May 2006: Northwestern University, Department of Radiology Grand Rounds, "Mesenchymal neoplasms of the GI tract," AD Levy.
9. August 2006: Bethesda, Md, USUHS Department of Radiology, (2h) to 4th year medical students, "Pediatric emergency radiology," E Chung.
10. August 2006: Washington, DC, WRAMC Department of Radiology,"Cystic renal disease of childhood," E Chung.
11. September 2006: Washington, District of Columbia, WRAMC Department of Radiology, to all classes radiology residents, "GI emergencies in infants and children," E Chung.
12. October 2006: Arlington, Va, Virginia Hospital Center, Pediatric Grand Rounds, "Congenital brain anomalies," E Chung.
13. October 2006: Cleveland Ohio, The Cleveland Clinic, "Airways disease," JR Galvin.
14. October 2006: Cleveland Ohio, The Cleveland Clinic, "Idiopathic interstitial pneumonias," JR Galvin.
15. October 2006: Cleveland Ohio, The Cleveland Clinic, "Lung cancer," JR Galvin.
16. November, 2006: The Orthopedic Center, Morristown, NJ, Conference of Pediatric and Adult Hip Disorders, TH Harcke.
17. December 2006: Bethesda, Md, Uniformed Service University School of Medicine, MS4 Intercession Grand Rounds in Emergency Medicine, "Imaging in acute abdominal pain," AD Levy.
18. December 2006: Baltimore, Md, University of Maryland Medical Center, Department of Radiology Grand Rounds, "Virtual autopsy: AFIP experience," AD Levy.

Non-AFIP Courses/Presentations

1. January 2006: Jamaican Association of Radiology, Kingston, Jamaica,"Gastrointestinal stromal tumors," "Colorectal carcinoma," "Hepatic infections," AD Levy.
2. February 2006: Albuquerque, NM, 36th Annual University of New Mexico/Carrie Tringley Hospital Winter Musculoskeletetal Seminar, "Concepts of bone densitometry in children," "Measuring bone densitometry in children with cerebral palsy using the lateral distal femur," HT Harcke.
3. March 2006: Tucson, Ariz, Twenty-Ninth Annual Meeting of the Society of Skeletal Radiology, "Imaging manifestations of hemangioma of bone: a review of 214 lesions," M Murphey, Gannon FH.
4. March 2006: Tucson, Ariz, Twenty-Ninth Annual Meeting of the Society of Skeletal Radiology, "Imaging Appearance of congenital fibro sarcoma of the soft tissues," Jennings BT, Arcara LK, Fanburg-Smith JC, M Murphey.
5. March 2006: Washington, DC, Institute of Ultrasound in Medicine 2006 Annual Meeting, "Sonographic localization of traumatic metallic fragments," (J Ultrasound Med 2006), HT Harcke.
6. March 2006: Abdominal Radiology Course 2006 (the Society of Gastrointestinal Radiol-

ogy and the Society of Uroradiology), Kauai, Hawaii, "Plenary Session Lecture, Biliary Imaging," AD Levy.

7. March 2006: Orlando, Fla, Society of Thoracic Radiology Annual Meeting, Scanlon Symposium, "Pulmonary hypertension, radiologic-pathologic correlation", "STR thoracic and cardiac imaging," Frazier AA.
8. March 16, 2006, Orlando, Fla, The Society of Thoracic Radiology, "The smoking related interstitial lung diseases," JR Galvin.
9. April 2006: Dresden, Germany, European Pediatric Orthopedic Society 25th Annual Meeting, "Residual dysplasia after successful ultrasound-monitored Pavlick harness treatment; a five-year follow-up of neonatal hip instability," V Alexiev, HT Harcke.
10. May 2006: Vancouver, BC, Canada American Roentgen Ray Society 106th Annual Meeting, "Incidental soft tissue masses on MRI," M Murphey.
11. May 2006: Vancouver, BC, Canada, American Roentgen Ray Society Annual Meeting, "Soft tissue tumors: how to stay out of trouble," M Murphey.
12. May 2006: Seoul Korea, Musculoskeletal Ultrasound Society, Faculty/ Sixteenth Annual Meeting, "Ultrasound of the hip and proximal femur, ultrasound of musculoskeletal infection in pediatrics," HT Harcke.
13. June 2006: Joint Meeting of the European Society of Gastrointestinal Radiology and Society of Gastrointestinal Radiology, Crete, Greece, Plenary Session, "Gastrointestinal stromal tumors: a new paradigm in oncologic imaging," AD Levy.
14. August 2006: Porto de Galinhas-PE, Brazil, International Symposium on Gastrointestinal Radiology, "Biliary neoplasms, congenital biliary diseases, and small bowel neoplasms," AD Levy.
15. August 2006: IV Jornada Sudeste de Radiologia, Rio de Janeiro, Brazil, "Biliary neoplasms, congenital biliary disease, and small bowel neoplasms," AD Levy.
16. September 2006: Vancouver, BC, Canada, International Skeletal Society 2006 Closed Meeting, "Session I: Pediatric Case: Case 4," JC Fanburg-Smith, M Murphey.
17. September 2006: Vancouver, BC, Canada, International Skeletal Society 33rd Annual Radiology and 4th Annual Pathology Course, "Tissue specific diagnosis," M Murphey.
18. September 2006: Vancouver, BC, Canada, International Skeletal Society 33rd Annual Radiology and 4th Annual Pathology Course, "Chordoma, benign chordoma, histiocytosis X, vascular tumors, storage diseases," M Murphey.
19. September 2006: Vancouver, BC, Canada, International Skeletal Society 33rd Annual Radiology and 4th Annual Pathology Course, "Desmoplastic fibroma, non-ossifying fibroma, benign and malignant fibrous histiocytoma, fibrosarcoma, fibro-osseous lesion, adamantinoma," M Murphey.
20. September 2006:Vancouver, BC, Canada, International Skeletal Society 2006 Closed Meeting ,"Session VI: Bone lesion (in soft tissue) and soft tissue lesions (in bone): Case 37," F Gannon, M Murphey.
21. September 2006, Vancouver, BC, Canada, International Skeletal Society 33rd Annual Radiology and 4th Annual Pathology Course, "Workup of the soft tissue mass," M Murphey
22. April 2006: Metanephric adenoma of the kidney: Radiologic-Pathologic Correlation, Woodward PJ
23. September 2006, Wilmington, Del, Pediatric Musculoskeletal Ultrasound Course, Hip Ultrasound Technique, Classification of Developmental Dysplasia of the Hip, Screening for DDH, Ultrasound Guided Management of DDH, HT Harcke.
24. October 2006: Boston, Mass, "Pediatric radiology: basic practice and advanced concepts," MJ Siegel
25. October 2006: Monterrey, Mexico, 22nd National Congress of Radiology, MJ Siegel.
26. October 2006: Washington, DC, Cancer Imaging Program of the National Cancer Institute, invited speaker, MJ Siegel.
27. November 2006: Philadelphia Pa, Mammography Society of Philadelphia, "Breast lesions in young women," LM Glassman.
28. November 2006: Chicago Illinois, The Radiological Society of North America, Refresher Course, "The idiopathic interstitial pneumonias," JR Galvin.
29. December 2006: Bethesda, Md, National Institute of Allergy and Infectious Diseases/ National Institutes of Health, invited speaker, Infectious Disease Imaging Interest Group, "Radiologic-pathologic correlation: anthrax, acute eosinophilic pneumonia, and SARS," JR Galvin.

30. December 2006: Chicago, Ill, The Radiological Society of North America, "Learning and the internet," JR Galvin.
31. December 2006: Chicago, Ill, The Radiological Society of North America, Special Focus Session, "Angiomatous lesions" (Presented with the faculty of the Department of Radiologic Pathology, AFIP), JR Galvin.
32. December 2006: Chicago, Ill, The Radiological Society of North America, "Introduction to research seminar," JR Galvin.

Departmental Conferences

Intramural

Gastrointestinal Radiology:

2 (1 hours) per month, Gastrointestinal Pathology Conference
1 (1 hour) per month, Hepatic Pathology Conference
6 (1.5 hour) per year, Endocrine Pathology Conference
2 (1 hours) per year, Hematopathology Conference

Genitourinary Radiology:

2 (2 hours) per month, Genitourinary Pathology Conference
1 (1.5 hour) per month, Endocrine Pathology Conference

Mammography:

3(1 hour) per year, Gynecologic and Breast Pathology Conference

Musculoskeletal Radiology:

23 (1 hour) per month Orthopedic / Soft Tissue Pathology Conferences
4 (1 hour) per year Oral and Maxillofacial Pathology Conference

Neuroradiology

4 (1 hour) per month, Neuropathology Conference

Pediatric Radiology

1 (1 hour) per year, Pediatric Pathology Conference

Pulmonary and Mediastinal Radiology:

2 (2 hours) per month, Pulmonary and Mediastinal Pathology Conference for class cases
6 (1 hour) per year, Cardiovascular Pathology Conference for class cases
2 (1.5 hours) per week review of clinical consults

Forensic Radiology

2 (1 hour) per month, Carson Mortuary

Extramural:

Gastrointestinal Radiology

2 (1 hour) per month, Department of Radiology and Nuclear Medicine (MS-4 Radiology), USUHS
1 (1 hour) per month, Department of Gastroenterology, Walter Reed Army Medical Center
1 (1 hour) per year, Department of Pathology (MS-2 Pathology), USUHS
1 (1 hour) per year, Department of Radiology and Radiological Sciences (MS-2 Radiology), USUHS
1 (1 hour) per year, Department of Anatomy (MS-1 Anatomy), USUHS
3 (1 hour) per year, Department of Nephrology, Walter Reed Army Medical Center.

Genitourinary Radiology

1 (1 hour) per year, Department of Radiology and Radiological Sciences (MS-2 Radiology), USUHS

Musculoskeletal Radiology:

1 (1.5 hours) conferences per month, Orthopedic Resident Conference, WRAMC
2 (1 hour) conferences per month, Rheumatology Conference, WRAMC
1 (1 hour) conference per month, Rheumatology Conference, National Institutes of Health

1 (1 hour) conference per month, Rheumatology Conference, Washington Hospital Center
1 (1 hour) conferences per year, Sports Medicine and Arthroscopy Conference, WRAMC Pulmonary Radiology
1 (2 hours) per week, Pulmonary Medicine Conference, WRAMC

Neuroradiology
4 (1 hour) per month, Neuropathology Conference

Forensic Radiology
21 hours per year, USUHS

Seminars: 171 seminars were conducted

Gastrointestinal Radiology:
6 (1 hour) per year, Department of Radiology, USUHS
4 (1 hour) per year, Department of Radiology, WRAMC
5 (1 hour) per year, Department of Gastroenterology, WRAMC
3 (1) hour per year, Department of Nephrology, WRAMC

Genitourinary Radiology:
1 (1 hour) per month Urology Fellow Conference, University of Maryland Medical Center
1 (1 hour) per month Internal Medicine Fellow Conference, University of Maryland Medical Center
1 (1 hour) per year, Radiology Department, WRAMC
2 (1 hour) per month, Resident Conference, University of Maryland Medical Center
2 (1 hour) per month, Fellow Conference, University of Maryland Medical Center
10 (1 hour) per year, Resident Conference, University of Utah

Musculoskeletal Radiology:
8 (1 hour) per year, USUHS

Neuroradiology:
2 (1 hour) per year, WRAMC

Pediatric Radiology:
4 (1 hour) per year, WRAMC

Pulmonary and Mediastinal Radiology:
10 (1 hour) per year, University of Maryland Medical Center

RESEARCH

Research is based on the contents of the departmental archives, which are mainly derived from cases contributed by residents attending the Radiologic Pathology Courses, collaboration with outside investigators, and primary investigational projects by the department staff. The department published 20 journal articles, 10 abstracts, 3 books, 1 book chapter, 4 scientific exhibits, 24 contributions to syllabi, and 7 electronic publications in 2005. There were 11 investigative research projects and 14 educational research projects in progress during 2005.

Publications

Journal Articles

1. Chung EM, Travis MD, Conran RM. Pancreatic tumors in children: radiologic-pathologic correlation. *RadioGraphics*. 2006 Jul-Aug;26(4):1211-38.
2. Frazier AA, Franks TJ, Galvin JR, Inhalational Anthrax. Journal of Thoracic Imaging. 2006:21(4) 252-258
3. Frazier AA, Franks TJ, Pugatch RD, Galvin JR. From the archives of the AFIP: Primary pulmonary synovial sarcoma. *RadioGraphics*. 2006;26:923-940.
4. Harcke HT, Statler JD, Montilla J. Radiology in a hostile environment: experience in Afgahanistan. Military Medicine. 2006;171:194-199.
5. Kransdorf MJ, Murphey MD. Soft tissue tumors: post-treatment imaging. R*adiology Clinics of North America*. 2006;44: 463-472.

6. Levy AD, Abbott RM, Mallak CT, Getz JM, Harcke HT, Champion HR, Pearse L. Virtual autopsy: preliminary experience in high velocity gunshot wound victims. *Radiology*. 2006;240(2):522-528.
7. Levy AD, Rimola J, Mehrotra AK, Sobin LH. Benign fibrous tumors and tumor-like lesions of the mesentery: radiologic pathologic correlation. *RadioGraphics*. 2006;26:245-264.
8. Bachrach SJ, Kecskemethy HH, Harcke HT, Lark RK, Miller F, Henderson RC: Treatment of osteopenia with Pamidronate in children with spastic quadriplegic cerebaral palsy. *J Clinical Densitometry*. 2006;9:167-174.
9. Alexiev VA, Harcke HT, Kumar SJ. Residual dysplasia after successful Pavlik harness treatment: early ultrasound predictors. *J Pedeatra Orthop*. 2006;26:16-23.
10. Snyder M, Harcke HT, Domzalski M. Role of ultrasound in the diagnoasis and management of developmental dysplasia of the hip: an international perspective. *Orthopedic Clinics of North America*. 2006;37(2):141-147.
11. Grissom LE, Harcke HT. Bone densitometry in pediatric patients. *Delaware Medical Journal*. 2006;78:147-150.
12. Wong-You-Cheong JJ, Woodward PJ, Manning MA, Sesterhenn IA. From the Archives of the AFIP: neoplasms of the urinary bladder: radiologic-pathologic correlation. *RadioGraphics*. 2006;26(2):553-580
13. Wong-You-Cheong JJ, Woodward PJ, Manning MA, Sesterhenn IA. From the Archives of the AFIP: Inflammatory and nonneoplastic bladder masses: radiologic-pathologic correlation. *RadioGraphics*. 2006;26(6):1847-1868.

Book Chapters

1. Levy, AD. Differential diagnosis of diseases of the gallbladder and bile ducts. In: Hodler J, von Schultthess GK, Zollikofer CL, eds. *Diseases of the Abdomen and Pelvis: Diagnostic Imaging and Interventional Techniques*. Italy: Springer Verlag; 2006.
2. Mandell GA, Harcke HT. The Child with a Limp. In: Hilton SVW and Edwards DK, eds. *Practical Pediatric Radiology*, Third Edition. Philadelphia, Pa: Saunders Elsevier; 2006: 652-692.
3. Siegel MJ. Pediatric applications of computed body tomography. In: Lee JKT, Sagel SS, Stanley RJ: Heiken JP, eds. *Computed Body Tomography With MRI Correlation*. Philadelphia: Lippincott-Williams & Wilkins; 2006.

Books

1. Osborn AG, Birdwell RL, Dalinka MK, Gardiner GA, Levy AD, Maynard CD, Oestreich AE, Rosado de Christenson ML, eds. *Year Book of Diagnostic Radiology 2006*. Philadelphia, Pa: Mosby; 2006.
2. Levy AD, Chung EM, Galvin JR, Koeller KK, Murphey MD, Woodward PJ, eds. *Radiologic Pathology 2006-2007*. Fifth Edition. Washington DC: American Registry of Pathology; 2006.

Syllabi

Murphey MD, Kransdorf MJ. Soft-Tissue Tumors. Body MRI: Categorical Course Syllabus. American Roentgen Ray Society, Vancouver, BC, Canada. April 30-May 5, 2006; 303-314.

Scientific Abstracts

1. Gupta R, Mortele KJ, Tatli S, Girshman J, Glickman J, Levy AD, Silverman SG, Ertuk SM. CT differentiation of intraductal papillary mucinous Neoplasms: should current concepts be revised? European Society of Gastrointestinal Radiology 17th Annual Meeting combined with the Society of Gastrointestinal Radiology 35th Annual Meeting, June 19-23, 2006.
2. Frazier A, Society of Thoracic Radiology Annual Meeting, Scanlon Symposium. A Pulmonary Hypertension, Radiologic-Pathologic Correlation, 2006 (March). Entry published in STR Thoracic and Cardiac Imaging , Orlando, Fla, 2006

Scientific Exhibits

1. November/December 2006: "Multidetector computed tomography (MDCT) analysis of projectile injury in forensic investigation," Radiologic Society of North America 92nd Scientific Assembly and Annual Meeting, Harcke HT, Levy AD, Getz JM, Robinson S.
2. March 2006: "Imaging spectrum of unusual ectopic pregnancies: diagnosis and clinical follow-up." Journal of Ultrasound in Medicine, AIUM Annual Convention, Oh KY, Puglia KH, Woodward PJ, Kennedy AM.
3. 2006: Characterization of mature retroperitoneal tumors: CT, Ultrasound and Pathologic Correlation. Society of Uroradiology, Rosenfield AT, Woodward PJ.

Electronic Publications

Levy AD, Woodward PJ, Galvin JR, Chung EM, Koeller KK, Murphey MD. "Extranodal lymphoma from head to toe," RSNA Web Publication 2006-RSNA CD-Rom Publication 2006.

Projects

Investigative

1. Siegel MJ, Chung EM. Hepatoblastoma: radiologic-pathologic correlation in 150 cases.
2. Chung EM, Levy AD, Miettenen M, Siegel MJ. Gastrointestinal Stromal tumors in the pediatric population.
3. Rushing EJ, Chung EM. Clinicopathological features of spinal cord lesions in children.

Educational

Chung EM, Specht C, Schroeder JW, Cube R, Smirniotopoulos JA. Pediatric orbit tumors and tumor-like conditions

Collaborators

Military/Federal

1. James Smirniotopoulos, MD, USUHS, Bethesda, Md
2. David Matthew DeLonga, CDR, MC, USN, Portsmouth Naval Hospital, Portsmouth, Va

Civilian, US

1. American College of Radiology
2. American Osteopathic College of Radiology
3. American Roentgen Ray Society
4. Association of University Radiologists
5. Association of Program Directors in Radiology
6. Radiological Society of North America
7. Department of Radiology, University of Maryland Medical Center
8. Nandini Patel, MD, Washington Hospital Center, Washington, DC
9. Maria Manning , MD, Washington Hospital Center, Washington, DC

Civilian, International

1. Curso de Correlação Anatomo-Radiologica, Lisbon, Portugal
2. Fundación XIII Congreso Internacional de Radiologica, Madrid, Spain
3. Japanese College of Radiology, Kobe, Japan
4. Jornada Paulista de Radiologica, São Paulo, Brazil
5. Journées Françaises de Radiologie, Paris, France
6. Österreichische Röntgengesellschaft, Vienna, Austria
7. Javier Garcia, MD, Barcelona, Spain

PROFESSIONAL ACTIVITIES

Honors

Harcke HT

Meritorious Service Medal (3rd Award), Best Doctors in America 2006, and America's Top Radiologist 2006.

Craig WD

Meritorious Service Medal (3rd Award).

Murphey MD

Certificate of Merit for Educational Exhibit on "Imaging characteristics of superficial soft tissue masses," at the 91st Scientific Assemble and Annual Meeting of the RSNA, Radiologic Society of North America.

Official Trips

1. March 2006: European Congress of Radiology, Vienna, Austria, DE Hatley (AFIP), M Grace (AFIP).
2. March 2006: 29th Society of Skeletal Radiology 2006, Tucson, Ariz, B Jennings (ARP), MD Murphey (ARP).
3. March 2006: 35th Annual Society of Gastrointestinal Radiology Annual Meeting, San Antonio, Kauai, Hawaii, AD Levy (AFIP).

4. April 2006: 36th Jornada Paulista de Radiologia, Sao Paulo, Brazil, MJ Siegel (ARP), LM Glassman (ARP) MJ Kransdorf.
5. May 2006: American Roentgen Ray Society 106th, Vancouver, BC, Canada, MD Murphey (ARP), MJ Kransdorf.
6. May 2006: American Board of Radiology Oral Examination, Louisville, Ky, LM Glassman (ARP).
7. June 2006: Sociedade Portuguesa de Radiologia e Medicina Nuclear (SPRMN)-Armed Forces Institute of Pathology, Lisbon, Portugal, X Curso de Correlação Anátomo Radiológica, KK Koeller (AFIP), MJ Siegel (ARP), BJ Wagner, ME Mulligan.
8. June 2006: Österreichische Röntgengesellschaft-Armed Forces Institute of Pathology, 12th Radiologisches Fortbildungsseminar, KK Koeller (AFIP), MJ Siegel (ARP), BJ Wagner, ME Mulligan.
9. June 2006: Fundación Espanola de Radiología-Armed Forces Institute of Pathology, XVI Curso Internacional de Correlación Radio-Patológica, Madrid, Spain, KK Koeller (AFIP), MJ Siegel (ARP), BJ Wagner, ME Mulligan.
10. October 2006: Journées Françaises de Radiologie, Paris, France, EM Chung (AFIP), MD Murphey (ARP), JG Smirniotopoulos (USUHS).
11. November/December 2006: 92nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL, CM Chung (AFIP), WD Craig, (AFIP), AA Frazier (ARP), JR Galvin (ARP), HT Harcke (AFIP), M Grace (AFIP), AI Torruella (ARP), AD Levy (AFIP), MD Murphey (ARP), CD Williams (ARP).

Committees

Frazier AA

1. Member, Public Relations Committee, American Association for Women in Radiology.
2. Member, Continuous Professional Improvement Panel, American College of Radiology.
3. Member, Scientific Awards Committee, American Roentgen Ray Society.

Galvin JR

1. Member, Education Subcommittee, Society of Thoracic Radiology.
2. Member, Task Force 8 Project Team – Database development for Distance Learning and Education, AFIP.

Glassman LM

Member, Radiological Devices Panel, Center for Devices and Radiological Health, United States Food and Drug Administration.

Harcke HT

Member, Subcommittee on Developmental Dysplasia of the Hip, American Academy of Pediatrics.

Koeller KK

1. Member, Learning File Development Committee, American College of Radiology.
2. Member, Executive Committee, American Society of Neuroradiology.
3. Member, Scientific Exhibit Committee, American Society of Neuroradiology.
4. Member, Audio-Visual Committee, American Society of Neuroradiology.
5. Member, Distance Learning Committee, Armed Forces Institute of Pathology.
6. Moderator, Scientific Session, Radiological Society of North America 90th Annual Meeting.

Levy AD

1. Member, Oversight Committee for Continuing Medical Education, Armed Forces Institute of Pathology.
2. Member, Gastrointestinal Subcommittee of the Education Exhibits Committee of Radiological Society of North America 92nd Annual Meeting.
3. Member, 2005 Society of Gastrointestinal Radiology Scientific Program Committee.
4. Member, 2006 Society of Gastrointestinal Radiology/Abdominal Radiology Course Program Committee.
5. Member, Association of Program Directors in Radiology Education Committee.
6. Member, Association of Program Directors in Radiology Chair, AFIP Ad Hoc Committee.

Murphey MD

1. Member, Scientific Exhibits Committee, Musculoskeletal Section, American Roentgen Ray

2. Member, RadioGraphics Exhibit Review Committee, Musculoskeletal Section, Radiological Society of North America.
3. Member, CPI/Musculoskeletal Radiology Expert Review Panel, American College of Radiology.
4. Member, Program Committee, Society of Skeletal Radiology.
5. Member Rules Committee, International Skeletal Society.
6. Member, Closed Meeting Planning Committee, International Skeletal Society.

Chung EM

1. Member, Research Committee, Armed Forces Institute of Pathology.
2. Medical Director CPR Committee, Armed Forces Institute of Pathology.

Woodward PJ

1. Moderator, Genitourinary Program, Radiological Society of North America 92nd Annual Meeting.
2. American College of Radiology Imaging Network: Cervical Cancer Study.

Offices Held

Koeller KK

1. Councilor to the American College of Radiology, American Society of Neuroradiology.
2. Chair, Ad Hoc Committee on the AFIP, Association of Program Directors in Radiology.

Editorial Boards

1. *RadioGraphics*, Chung EM, Koeller KK, Levy AD
2. *Skeletal Radiology*, Murphey MD
3. *Radiology Case Report*s, Levy AD
4. *American Journal of Roentgenology*, Glassman LM

Editorships

1. Associate Editor, *FOCUS*, newsletter of American Association of Women in Radiology , Frazier AA.
2. *RadioGraphics*, deputy editor, Galvin JR.
3. Radiological Society of North America, associate editor, Education Center Materials, Galvin JR.
4. American College of Radiology CD-ROM Learning Disk, *Neuroradiology*, 2nd edition, Galvin JR.

Journal Reviews

1. *American Journal of Roentgenology*, Frazier AA, Glassman LM, Galvin JR , Murphey MD
3. *RadioGraphics*, Galvin JR, Glassman LM, Koeller KK, Levy AD, Murphey MD, Woodward PJ
3. Symposium for Computer Assisted Radiology, Galvin JR
4. *Radiology*, Glassman L, Koeller KK, Levy AD, Murphey MD
5. P*ediatric Radiology,* Harcke HT
6. *American Journal of Neuroradiology*, Koeller KK
7. *American Journal of Neuroradiology*, Koeller KK
8. *Journal of Computer Assisted Tomography*, Levy AD
9. *Skeletal Radiology*, Murphey MD
10. *Journal of Magnetic Resonanc*e, Woodward PJ
11. *Ultrasound in Obstetrics and Gynecology*, Woodward PJ

Christopher R. Owner, PhD
Chair
Date of Appointment – 1 January 2005

Annette R. Anderson, MS, RHIA
Associate Chair
Date of Appointment — 14 November 1994

DEPARTMENT OF REPOSITORY AND RESEARCH SERVICES

ORGANIZATION

The department is currently organized into five separate entities as follows:

1. Office of the Chair
2. Research Services Division
3. Case Materials Accountability Division (CMAD)
4. Records Repository
5. Materials Repository

IMPACT

The Department of Repository and Research Services provides administrative support to the Center for Advanced Pathology and to the Department of Defense in achieving the Institute's objectives in consultation, education, and research. The department's main functions are as follows:

- Maintaining the AFIP Repository, consisting of over 3 million case files and associated paraffin blocks, microscopic glass slides, and formalin-fixed tissue specimens.
- Receiving and accessioning case materials with the highest possible materials accountability and responding to contributors' requests for information on the status of cases submitted.
- Receipting for all express and courier mail and providing a case pick-up and delivery service throughout the Institute.
- Responding to outside requests for release of medical information and pathologic materials.
- Coding and entering pathologic diagnoses and case demographic data into the Institute's research database using the SNOMED coding system.
- Performing administrative quality review of case files following final report.
- Obtaining patient follow-up information for clinicopathologic correlation studies.
- Conducting periodic quality assurance audits to ensure case record completeness, the integrity of the research database, and the accurate tracking of case materials.
- Generate and mail invoices for civilian billable cases using appropriate CPT codes while ensuring all services and tests rendered are accurately and completely accounted for in PIMS.
- Coordinating research protocol administrative requirements including review, approval, and monitoring of research activities by the various Institute research-related committees to include the Institutional Review Board (IRB), the Institutional Animal Care and Use Committee (IACUC), and the Research Committee.
- Publishing the Institute annual research progress report; periodically updating other research-related publications, and preparing reports as required for outside monitoring agencies.
- Maintaining a repository of pathologic materials from closed military medical facilities in accordance with applicable DoD regulations and federal statutes.
- Serving as Institute Coordinator for the Partnership Program with Rock Terrace High School, Rockville, Md.

- Providing budgetary monitoring and policy guidance for the DoD Automated Central Tumor Registry (ACTUR), the DoD Central Cancer Registry, and hosting the annual DoD Cancer Registrars Training Conference.
- Providing management support, policy guidance, and quality assurance monitoring for the Institute's digital imaging contract task orders concerning document conversion.

OFFICE OF CHAIR

The following is a report on programs and initiatives that impact more than one division or are special programs managed out of the Office of the Chairperson.

Digital Imaging Effort

This year the Institute's digital imaging initiative entered into its fifth year with Information Manufacturing Corporation (IMC). Although there was no active conversion tasking regarding the Base Closure records, there was a knowledge management initiative to develop a method for extracting pertinent data from the database for the construction of designated tissue microarrays. This effort was tested in 2006. During this year, the number of images to be converted to digital format for the Main AFIP accessioned repository was substantially increased. The conversion of the Department of Legal Medicine claims files continued as in the previous contract. The number of cases or records currently converted and available for electronic retrieval under each of the separate task orders is as follows:

AFIP Main Accessioned Repository	1,035,056
Legal Medicine Claims Files	32,232
Radiology Pathology Cases	21,751
Andrews AFB Tumor Registry	2,703
Womack Army Medical Center Tumor Registry, Ft Bragg	1,221
Portsmouth Naval Medical Center Tumor Registry	1,602
Walter Reed Army Medical Center Tumor Registry	40,299
Base Realignment and Closure Records	4,167,533
BRAC Facility Logs	573
MIS Library Test	110
MIS Library	69,929
MIS Library Book Series	13
Total Records	5,373,022

DEPARTMENT OF DEFENSE (DOD) CANCER REGISTRY PROGRAM

The main objective of the DoD Cancer Registry is to assist in improving the care given to our service members and their families. The DoD Cancer Registry Program continues to make progress in improving data collection with strives toward analyzation of the data. The main highlights of the program during 2006 were as follows:

- The annual training conference for DoD Tumor Registrars was held in Arlington, Va in May. The theme of the conference was "Fighting the War on Cancer...I am a Cancer Registrar." The objectives of the conference were to provide continuing education and ongoing training to cancer registrars at military treatment facilities in order to enhance their knowledge and encourage expertise in all areas of cancer registration and cancer data collection standards. The majority of critiques from the conference were positive.
- The DoD Central Registry converted its central registry software from IMPATH to the Centers for Disease Control (CDC) Registry Plus software. The new software "Registry Plus" improves the efficiency of data processing and is more economical compared to the previous software IMPATH.
- All reportable cancer cases from military treatment facilities for 1998 through 2000 were consolidated and edited using the new software. Cases for 2002 and 2003 have been edited using the previous software, IMPATH, with the expected conversion and consolidation to the new software in FY 07.
- Quality assurance reviews continue as the service consultants compare the AFIP database for reportable cancers to the ACTUR data base to identify missing cases.
- Staff – DoD ACTUR Program Coordinator - LCDR Patrice D. Robinson

ROCK TERRACE SCHOOL PARTNERSHIP PROGRAM

The Institute's long-standing relationship with Rock Terrace High School continued in 2006. Approximately 15 students worked at the Institute as volunteer student aides and paid part-time workers. Most of the students worked in the Materials Repository Division and the Records Repository Division. The students continued their labor-intensive project of inventorying the case folders within the Records Repository and updating the PIMS locator system with the information. They also assisted in breaking down bulk return of slides into appropriate groupings for eventual acknowledgement and filing, while the more experienced students actually filed slides. This year the students also increased their capacity to shred patient-identifiable documents and they continued being responsible for the folding and mailing of the invoices generated under the Civilian Consultation Program. In addition, this year the students began mailing out the mid-month statements to civilian contributors for the AFIP Business Office.

HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT OFFICE (HIPAA)

STAFF

Annette R. Anderson, MS, RHA, Privacy Officer
Izzat S. Ali, CT (ASCP), Training Administrator

MISSION

The HIPAA Office provides guidance to AFIP staff to implement and maintain the requirements in the Health Insurance Portability and Accountability Act. The office also provides initial and refresher training to the Institute staff.

Activities

With the continued phasing bimonthly by category of both annual HIPAA Refresher and Security Training this year, AFIP was able to consistently meet training targets at the 98% or above level. Updated posters continued to be placed at strategic locations throughout the Institute.

Ms. Ali also serves as the AFIP cytotechnologist providing screening assistance to the Department of Gynecology and Breast Pathology. During 2006, she screened over 150 cases.

Ms. Ali participated in a Quality Assurance collaborative study project between AFIP and the World Health Organization (WHO) in which she performed microscopic screening and reported over 300 gynecologic cases (Pap smears).

Ms. Ali participated in the College of American Pathologists' Inter-laboratory Proficiency Comparison Program exercises in gynecologic and non-gynecologic cytopathology, as well as the Federally mandated Gynecologic Cytopathology Proficiency Test.

RESEARCH SERVICES DIVISION

STAFF

Annette R. Anderson, MS, RHIA, Associate Chair
Patrice D. Robinson, LCDR, MSC, USN, Director
Marcia Pringle, Secretary

IMPACT

The Research Services Division supports the mission of the AFIP through the following activities:

1. Reviewing and processing protocols and educational projects submitted by AFIP staff for approval and funding.
2. Ensuring protocol administrative requirements are met and maintaining official protocol files.
3. Coordinating activities of the AFIP Research Committee, Institutional Review Board (IRB), and Institutional Animal Care and Use Committee (IACUC).
4. Performing annual protocol reviews, conducting semiannual laboratory animal facility inspections, drafting meeting minutes, preparing committee action documents and notices to investigators, and preparing required reports for various accrediting and

oversight organizations.
5. Monitoring the status of conditionally approved projects and publishing a monthly status report of all active protocols within the Institute.
6. Coordinating publication of the AFIP Annual Research Progress Report and the Institute's Annual Report to Congress on Laboratory Animal Care and Use.

ACTIVITIES

The year 2006 ended with a total of 182 active in-house projects, extramural grants, research contracts, and agreements. This is a 10% decrease from the previous year.

Institutional Animal Care and Use Committee (IACUC): Of note this year was the survey by the Association for the Assessment and Accreditation of Laboratory Animal Care (AALAC) in June 2006. Only a few very minor deficiencies were noted and the Institute received continued full accreditation. The required semiannual facility inspections and program reviews took place in March and September. All the problems with the surgical suite have been resolved and the lab animal surgical suite is now a fully functioning state-of-the-art facility.

Institutional Review Board (IRB)

Efforts of the IRB this year focused on implementation of new, more comprehensive training requirements for investigators, to include a new PowerPoint presentation on local policies and procedures, as well as research ethics. In addition, significant progress was made toward development and implementation of an Institute-wide training database with IRB and IACUC training requirements used as the pilot study for the system.

Research Committee

The Research Committee reviewed and the Director gave final approval to a total of 78 new protocols this year with approximately 20 more in various stages of review at the end of the calendar year. Of note was the withholding, stating in November 2005, of approval for newly submitted protocols funded solely by AFIP and/or ARP resources. Several of these protocols are now in a deferral status based on the AFIP Director's decision to review this issue at the spring 2006 Board of Governor's Meeting. The various research-related committees continue to review these protocols as they are submitted but final approval is pending the results of the spring meeting.

CASE MATERIALS ACCOUNTABILITY DIVISION

Myra A. Moxley
Chief, Case Materials Accountability Division
Date of Appointment - 12 October 1993

STAFF

Jacqueline Martinez – Triage Manager (ARP)
Rosetta Jackson – Supervisory Medical Records Technician, Gillette CMAD
Gloria Countiss - Lead Medical Records Technician
Norma Garey - Lead Medical Records Technician
Adrian Bingham – Lead Medical Records Technician
Geraldine Key-Lovett - Medical Records Technician
Frances Miller – Medical Records Technician
Velda Jones - Medical Records Technician
Constance Patterson - Medical Records Technician, Gillette
Travis Jones - Medical Records Technician
Andrienne Kates - Medical Records Technician
Karen Mills - Medical Records Technician (ARP)
Tamara Tolver – Medical Records Technician (Anteon))
Quennitta Winzor – Medical Records Technician (Anteon)

Ramona James – Medical Records Technician (Anteon)
Paula Lecounte – Medical Records Technician (Anteon)
Bonnie McCloud – Triage Clerk (Advantage)
Stephen Banda - Accessions Clerk
Joel Ryerson – Accessions Clerk
Eric Curry – Messenger (ARP)
Roneice James – Messenger (ARP)
Christopher Jackson – Messenger (ARP)

MISSION

The Case Materials Accountability Division (CMAD) is responsible for the accurate receipt and accessioning of all pathology cases submitted for consultation, education, and research. Cases are submitted from the Department of Defense and other federal agencies, including the Department of Veterans Affairs, and from civilian pathologists all over the United States and the world. Cases received with discrepancies, such as mismatched paperwork and materials or missing items are held and the contributor is called for verification. All discrepancies must be resolved or explained before the case can be processed. The division is also responsible for the receipt of all express and courier mail by the Institute during duty hours and it runs a messenger service that picks up and delivers pathologic case materials and packages throughout the Institute several times daily.

ACTIVITIES

The combined division's workload statistics for 2005, compared to 2006, are as follows:

Workload Factor	2005	2006
Cases Accessioned	54,952	51,233
Federal Accessions	41,724	40,473
Civilian Accessions	13,228	10,760

During calendar year 2006 this division continued to experience a significant turnover of its contract personnel, largely due to training issues, as well as other losses and a decreased workload. However, as the year progressed case workload began to increase and several of the vacancies were allowed to be filled by contract personnel again.

All division SOPs were updated in anticipation of the accreditation inspection by the College of American Pathology in October 2007 and all technicians were issued individual new updated inserts to be placed in their training and reference notebook. Continued enhancements in the search capabilities of PIMS resulted in a decrease in the number of cases being deaccessioned especially the animal cases this year.

RECORDS REPOSITORY DIVISION

Mercedes E. Russell
Chief
Date of Appointment -- 2 October 1995

MISSION

The Records Repository Division is organized into 2 branches, the Records Archives Branch, to include the Medical Information Release Office, and the Pathology Data Branch. Both branches work closely together and many of the personnel have been cross-trained in each other's functions.

1. Record Archives Branch:

- Receives, stores, maintains, and retrieves all forms (microfiche, digital images, paper) of pathologic case files.

- Conducts inventory verification, appropriately identifies sequences, and performs initial document preparation functions such as ordering and de-duplicating the records prior to their being transferred the digital imaging contractor.
- Matches Legal Medicine Claims files with the applicable accessioned record, verifies patient data in PIMS or accessions the case as required.
- Performs quality assurance review on document images and passes or fails the images as applicable.
- Retrieves previously accessioned case folders in response to the accessioning of a new case sequence on the same patient.
- Returns original x-rays to contributors
- Processes all requests for release of information from the pathologic case files.
- Processes all requests for loan or return of submitted pathologic materials (slides, paraffin blocks, or wet tissue specimens).
- Tracks submission of all Department of Veterans Affairs claims cases.
- Rotates into the Triage function as assigned.
- Assists in receiving and accessioning Radiology class cases and Environmental Pathology Registry cases (KUW, POW, and Agent Orange).
- Maintains Institute Special Handling file and performs annual inventory and screening of these records.
- Assists in record location audits and in looking for missing or misplaced records.

2. Pathology Data Branch:

- Abstracts, codes, and classifies final diagnoses of accessioned cases according to SNOMED International.
- Retrieves demographic and diagnostic data from the research database to assist Institute staff members in their research and teaching endeavors.
- Obtains patient follow-up information in support of approved clinicopathologic correlation or descriptive pathology studies.
- Contacts contributing pathologists, hospitals, tumor registrars, patients, military records centers, and clinicians to obtain complete information.
- Prepares search requests to forward to the National Death Index (NDI) to include NDI Plus, at the request of investigators.
- Rotates into the Triage function as assigned.
- Assists in receiving and accessioning Radiology class cases and Environmental Pathology Registry cases (KUW, POW, and Agent Orange).
- Generates invoices on civilian cases using applicable CPT codes; ensures all patient and contributor demographic data is accurate and that all laboratory tests ordered in PIMS are accounted for through the billing or no bill memo functions; mails invoices if required.

RECORD ARCHIVES BRANCH/MEDICAL INFORMATION RELEASE OFFICE

STAFF

Louise Matthews – Lead Medical Records Technician
Eva D. Duncan – Medical Information Release Specialist
Shirley Shields – Medical Records Technician
Tiloria Brooks-White -- Medical Records Technician
Lenora Vaughn – Medical Records Technician
Pamela Poteat – Medical Records Technician
Serita Hewitt – Medical Records Technician
Glenda Taylor – Medical Records Technician (ARP)
William Moore – Lead Quality Assurance Technician (Anteon)
LaTonya Fleming – Quality Assurance Technician (Anteon)
Sara Reddix – Quality Assurance Technician (Anteon)
Nerissa Taylor – Quality Assurance Technician (Anteon)
Roderica Reyes – Quality Assurance Technician (Anteon)
Wenda Andrews – Quality Assurance Technician (Anteon)
Jenise Jenkins – Quality Assurance Technician (Anteon)
Ashi Ali – Quality Assurance Technician (Anteon)
Patricia Teague-Pollard – Quality Assurance Technician (Anteon)

ACTIVITIES

The division's workload statistics for calendar year 2004 as compared to 2005 are as follows:

Workload Factor	2005	2006
Folder/Materials Actions Received	81,633	74,187
Retrieval/Sent Actions	9,074	11,728
Information Release Requests	2,685	1,730

PATHOLOGY DATA BRANCH

STAFF

Toni Dickens - Lead Medical Records Technician
Janice Powell - Medical Records Technician
Terry Lloyd - Medical Records Technician
Tammie Miles - Medical Records Technician
Jacqueline Pinnix - Medical Records Technician
Elaine Tabernilla - Medical Records Technician (VA)
Frances Wise - Medical Records Technician (VA)

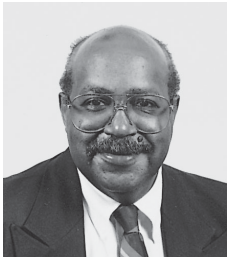
ACTIVITIES

The Pathology Data Branch's workload for 2004, compared with that of 2005 is as follows:

Workload Factor	2005	2006
Cases Uploaded	68,864	62,543
Data Retrievals	235	374
Invoices Generated (Since 1 Oct '04)	10,774	8,211

Since assuming responsibility for generating the invoices for civilian billable cases with no additional resources and the large influx of records received that have never been coded, no further progress could be made in eliminating the coding backlog, although a substantial number of cases were coded this year over last. It remains at almost 12 months. In addition, as the digital imaging project progresses and older records are prepared it was determined that many of these were not in PIMS. Apparently there was a problem during the PACAMS to PIMS conversion in 1997 and many records were lost and have to be re-entered into the system and coded prior to being forwarded for digital imaging. In addition, due to staff shortages in the Case Materials Accountability Division, Path Data and Records Repository staff have had to assist for many hours in Case Triage and in the accessioning of Radiology class cases. Path Data staff are, however, keeping up with all civilian billing requirements and, other than cases put on hold for pathology department problem resolution, no billing backlogs exist.

MATERIALS REPOSITORY DIVISION



Kenneth A. Rawley
Chief
Date of Appointment — 11 April 1982

MISSION

The Materials Repository Division processes, stores, and retrieves accessioned formalin-fixed tissue, microscopic glass slides, and paraffin blocks in support of the Institute's consultation, education, and research missions. In addition, a tissue-resealing laboratory is maintained for use in processing formalin-fixed tissue for storage and for tissue resealing and maintenance functions. The division also maintains a repository of pathologic materials and reports from

closed military medical facilities. The division maintains a storage area within Bldg 54, the AFIP main building, along with two 15,000 square foot warehouses located on the Forest Glen Annex of Walter Reed Army Medical Center in Silver Spring, Maryland.

STAFF

Alfonzo Riddick – Materials Handler Warehouse Supervisor
Gregory Corbin – Materials Handler Work Leader
Thelma P. Best – Materials Handler
Ronald L. Duell – Materials Handler
Wayne Hamilton – Materials Handler
Willie Lovett – Materials Handler
Larry Middleton – Materials Handler
James C. Stinney – Materials Handler
Audrey E. Tinker – Materials Handler
Marvin L. Alston – Materials Handler/Driver
Kendrick Summers – Materials Handler
John McClenny – Materials Handler
Douglas Underwood – Materials Handler
Ronnie Payne – Materials Handler (ARP)
Tyrone Connie – Materials Handler (ARP)
Della Owens – Materials Handler (Anteon)
Brian Mozon – Materials Handler (Anteon)
Charles Davis – Materials Handler (IMC)

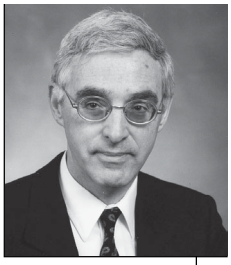
ACTIVITIES

The division's workload statistics for 2004 as compared to 2005 are as follows:

Workload Factor	2005	2006
Cases received for file	76,948	74,572
Cases forwarded	10,178	17,105

The Materials Repository continued to be inundated this year with a large volume of materials being returned to the Repository by researchers who departed the Institute. This large volume of slides, blocks, and tissues continue to be processed and added to the main repository files.

During 2006, Materials Repository personnel continued to assist in the oversight of the digital imaging contract, assisting in the performance of inventory verification, and moving the boxes of records back and forth from the AFIP main building to Forest Glen.



Leslie H. Sobin, MD, SES
Director
Date of Appointment — 20 September 1987

CENTER FOR SCIENTIFIC PUBLICATIONS

STAFF

Leslie H. Sobin, MD, Director
Frances W. Card, Visual Information Specialist
(D) Bonnie Casey, Scientific Editor, ARP
(D) Linda A. Murakata, CDR, MC, USNR, Associate Editor
(A) Anupamjit K. Mehrotra, MD, Associate Editor
(D) Michele Richman, Editor/Multimedia Production Technician, ARP

IMPACT

The Center for Scientific Publications:

- oversees editorial and publishing issues of Institute-wide interest,
- reviews proposals for AFIP-generated publications,
- provides editorial review of manuscripts,
- oversees the processing and transmitting of manuscripts to publishers,
- is responsible for clearance of manuscripts and abstracts according to DoD directives,
- maintains the Institute's publications records and archives,
- reviews requests for permission to reprint published materials,
- edits, designs, and produces the Annual Reports, the Annual Research Progress Report, the Institute's non-serial publications, the AFIP Letter, informational brochures and catalogs, and produces the Museum newsletter,
- provides expert review and consultation for the AFIP/ARP Atlases of Tumor and Nontumor Pathology,
- designs, coordinates, and produces CD-ROMs of Institute publications and provides user support,
- promotes the development and application of standardized diagnostic nomenclatures and classifications of the World Health Organization (WHO) and the International Union Against Cancer (UICC),
- coordinates revision of the UICC's TNM Classification and oversees publication of the revised editions.

In 2006, the center collaborated with ARP in the production of atlases of pathology on tumors of the serosal membranes, skin(nonmelanocytic), and eye. The worldwide distribution of these has great impact on the Institute's reputation as a major international source of authoritative information, standardized classifications and nomenclature. The outstanding quality of illustrations, the hallmark of AFIP/ARP publications, has drawn continued praise in scientific journal reviews.

Work on the fourth series of tumor atlases and on the nontumor atlas series continues in print and online formats. Work continues with the International Union Against Cancer UICC on tumor classification and staging (TNM system) and the interaction of staging with nonanatomic prognostic factors. The AFIP carried out a quality assessment project for the WHO's Pan American Health Organization on gynecological cytologic and histologic diagnoses of cervical cancer in Peru, the second in a series of such collaborative studies.

PROFESSIONAL ACTIVITIES

Official Trips (funding agency in parentheses)

1. April 2006: International Association for the Study of Lung Cancer (IASLC) Staging meeting, Seattle, Wash, LH Sobin (IASLC).
2. May 2006: TNM Prognostic Factors Project Meeting, International Union Against Cancer (UICC), Geneva, Switzerland, LH Sobin (UICC).
3. July 2006: UICC World Cancer Congress, Washington, DC, LH Sobin (UICC).
4. September 2006: American Joint Committee on Cancer (AJCC), Annual meeting, Chicago, Ill, LH Sobin (American College of Surgeons).

Committees (Intramural)

1. Chair, Committee on Graduate Medical Education, LH Sobin
2. Member, Institutional Review Board, F Card

Committees (Extramural)

LH Sobin:

1. Chair, TNM Prognostic Factors Project of the International Union Against Cancer
2. Member, WHO Expert Advisory Panel on Cancer

Editorships

LH Sobin:

1. Associate Editor, AFIP Atlas of Tumor Pathology, 4th Series
2. Associate Editor, AFIP/ARP Atlas of Nontumor Pathology.

AFIP STAFF PUBLICATIONS (SEE CUMULATIVE PUBLICATIONS LIST)

AFIP/ARP Atlases of Tumor Pathology

1. Churg A, Cagle PT, Roggli VL. *Tumors of the Serosal Membranes*. Washington, DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2006. Series 4, Fascicle 3, AFIP Atlas of Tumor of Pathology. ISBN: 1-881041-97-2.
2. Patterson JW, Wick MR. *Nonmelanocytic Tumors of the Skin*. Washington, DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2006. Series 4, Fascicle 4, AFIP Atlas of Tumor of Pathology. ISBN: 1-881041-98-1.
3. Font RL, Croxatto JO, Rao NA. *Tumors of the Eye and Ocular Adnexa*. Washington, DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2006. Series 4, Fascicle 5, AFIP Atlas of Tumor of Pathology. ISBN: 1-881041-99-9.

Other Publications

1. Armed Forces Institute of Pathology Annual Report 2005. Washington DC: Armed Forces Institute of Pathology; 2006. (print and CD-ROM versions).
2. Kelly CC, Casey BL, Card FW. AFIP Letter. 2006; vol 164: nos 1-3.
3. Solomon S, MacGregor C, Card FW. Flesh and Bones. National Museum of Health and Medicine. 2006; vol 6: nos 1-6.

Books and Fascicles Digitized and Proofed for Online Publication

WHO International Histological Classification of Tumors of Domestic Animals:

1. Dungworth DL, Hauser B, Hahn FF, Wilson DW, Haenichen T, Harkema JR. *Histological Classification of Tumors of the Respiratory System of Domestic Animals*. Vol 6. 2nd ed.
2. Head KW, Cullen JM, Dubielzig RR, Else RW, Misdorp W, Patnaik AK, Tateyama S, van der Gaag I. *Histological Classification of Tumors of the Alimentary System of Domestic Animals*. Vol 10. 2nd ed.
3. Meuten DJ, Everitt J, Inskeep W, Jacobs RM, Peleteiro M, Thompson KG. *Histological Classification of Tumors of the Urinary System of Domestic Animals*. Vol 11. 2nd ed.
4. Slayter MV, Boosinger TR, Pool RR. Dämmrich K, Misdorp W, Larsen S. *Histological Classification of Bone and Joint Tumors of Domestic Animals*. Vol 1, 2nd ed.
5. Wilcock B, Dubielzig RR, Render JA. *Histological Classification of Ocular and Otic Tumors of Domestic Animals*. Vol 9. 2nd ed.
6. Valli VE, Jacobs RM, Parodi AL, Vernau W, Moore PF. *Histological Classification of Hematopoietic Tumors of Domestic Animals*. Vol 8. 2nd ed.

Special Publications:

1. Gardiner CH, Poynton SL. *An Atlas of Metazoan Parasites in Animal Tissues*.
2. Gardiner CH, Fayer R, Dubey JP. *An Atlas of Protozoan Parasites in Animal Tissues*.

AFIP Atlases of Tumor and Nontumor Pathology: AFIP/ARP Books Published (print and online versions)

1. Font RL, Croxatto JO, Rao NA. *Tumors of the Eye and Ocular Adnexa*. Fascicle 5, Atlas of Tumor Pathology. Washington, DC: American Registry of Pathology/Armed Forces Institute of Patholoogy; 2006.
2. Patterson JW, Wick MR. *Nonmelanocytic Tumors of the Ski*n. Fascicle 4, Atlas of Tumor Pathology. Washington, DC: American Registry of Pathology/Armed Forces Institute of Patholoogy; 2006.

Jeffrey T. Mason, PhD
Chair
Date of Appointment — 1 May 2004

DEPARTMENT OF BIOPHYSICS

STAFF

Scientific:

Jeffrey T. Mason, PhD, Chairman, Department of Biophysics
Kimberlee Potter, PhD, Director, AFIP Magnetic Resonance Imaging Facility
Junkun He, PhD, Research Associate
Carol B. Fowler, PhD, Research Associate
Robert E. Cunningham, MS, Biologist and Histopathologist
Ingrid E. Chesnick, BS, Technician

IMPACT

Biotoxin and Disease Biomarker Detection: We are developing field-deployable assay systems for detecting biological toxins with high specificity and at sensitivity levels approaching 100 molecules. We have recently developed an assay called liposome polymerase chain reaction (LPCR) for the detection of toxins in biological and environmental specimens. Using LPCR, we have developed an assay for cholera toxin with a detection threshold and accuracy (95% confidence limit) of 10 ± 2 molecules, which is equivalent to a toxin concentration of 10-21M. We have also developed an LPCR assay for botulinum neurotoxin type A in deionized water with a detection threshold of 12 ± 5 molecules. These assays are 3-4 orders-of-magnitude more sensitive than current assays for cholera or botulinum toxins. The LPCR assays are described in two publications that appeared in 2006, one in Nature Biotechnology and the other in Nature Protocols, both highly prestigious journals. The LPCR assay was also reported in high-profile press sources such as the New York Times and Scientific American. This research is critical to homeland security, the protection of military personnel in combat or peacekeeping operations, and the forensic analysis of terrorist incidents. A patent application for our assay method was prepared and has been approved by USAMRAA for submission to the US Patent and Trademark Office. This work is funded by a grant from the Peer Reviewed Medical Research Program (PRMRP) supplement to the US Army Medical Research and Materiel Command (USAMRMC). We have also been awarded a grant from the Veterans Health Administration to support this research. During 2006, we have modified the LPCR assay format so that it can detect disease biomarkers, such as antibodies to HIV-1 gp41, in biological specimens. This antibody-based assay can detect disease biomarkers at concentrations well below the capabilities of current clinical assays. Thus, LPCR has the potential to revolutionize the dearly detection of biomarkers for diseases, such as cancer.

Chemistry of Formalin Fixation: We are developing methods to reverse the effects of formalin fixation on proteins and RNA so that these molecules can be recovered from formalin-fixed paraffin-embedded (FFPE) tissues for retrospective proteomic and genomic analyses. If successful, this research could dramatically improve our ability to diagnosis and treat numerous diseases. These methods are also highly relevant to the evaluation of formaldehyde-treated pathology specimens obtained from military casualties that have been exposed to infectious or toxic biowarfare agents. During the past year we have made substantial progress in the development of methods to recover proteins from FFPE tissue surrogates in a form suitable for proteomic analysis. We are now applying these methods to cells and tissues to see if the methods translate to a more complex biological matrix. In contrast, our studies with RNA have established that formaldehyde adducts can cause base-depurination, which is not reversible and results in lost information, preventing hybridization and RT-PCR. It is not yet clear if

methods can be found to avoid this problem during RNA recovery from FFPE tissues. The work described above is being funded by two grants from the National Cancer Institute. We have also collaborated with the Armed Forces DNA Identification Laboratory (AFDIL) to apply nucleic acid recovery methods developed in our laboratory to the recovery of trace DNA from bone specimens recovered from the Korean conflict.

Studies of Bone Development and Tissue Engineered Bone Implants: Traumatic bone injury and bone disease constitute the majority of medical cases of active duty personnel costing the military millions of dollars and thousands of lost man-hours per year. We are actively involved in using magnetic resonance microscopy (MRM) to develop and evaluate tissue engineered bone implants for reconstructive bone surgery and to evaluate bone disease. We employ MRM as a non-invasive high-resolution imaging modality to assess bone repair, bone and cartilage growth, and the infiltration of bone matrix into various scaffold materials. The goal of this work is to develop tissue engineered bone implants for repair of injured or diseased bone, and to compare the effectiveness of these constructs against more traditional strategies involving bone grafts. The results of this research will have a significant impact in the medical treatment and rehabilitation of active duty military personnel. The work is being funded by a 4-year R01 grant from the National Institutes of Health. The Magnetic Resonance Imaging Facility has also been asked to join a consortium that will be applying for a US Army grant to set up a "Soldier Institute for Tissue Engineering and Regenerative Medicine (SITERM)" center.

Additional Military Relevant Research: We are employing MRM in an on-going project in collaboration with Dr. Darlene Ketten of the Woods Hole Oceanographic Institute and Harvard Medical School to image the membranous labyrinths of the human cochlea. These studies have the goal of understanding hearing loss in traumatic ear injuries and optimizing the development and placement of cochlear implants in restoring auditory function. We are also employing MRM for wound pattern analysis in skin and eyes for applications in forensic medicine. An externally funded collaborative research project with the Department of Genitourinary Pathology to image prostatic carcinoma by MRM, initiated during 2005, has continued during 2006. Finally, the Magnetic Resonance Imaging Facility has been asked to collaborate with the "Defense and Veterans Brain Injury Center," Washington, DC, to study the pathology of traumatic brain injury.

CONSULTATION

The AFIP Magnetic Resonance Imaging Facility serves to provide magnetic resonance microscopic imaging services to the AFIP and other military and civilian collaborators. Magnetic resonance microscopy techniques in cardiovascular, pediatric, forensic, otologic, orthopedic, genitourinary, and ophthalmic pathology are being developed for analysis of cases for research and potential diagnostic applications.

Cases	*Completed*
Military	0
Federal	0
Civilian	0
Interdepartmental	12
Total	12

EDUCATION

Courses

1. August 2006: NIH, Bethesda, Md, Foundation for Advanced Education in the Sciences, "Techniques in flow cytometry," R Cunningham.
2. October 2006: Alexandria, Va, ITT Visual Information Solutions, "Medical imaging with magnetic resonance microscopy," K Potter.
3. December 2006: Palo Alto, Calif, Cepheid Corporation, "Techniques in liposome preparation and characterization," J Mason.

Trainees

Ingrid Chesnick, Research Assistant

Presentations

1. January 2006: Washington, DC, AFIP, "Effect of formaldehyde modifications on protein solubility and water-alcohol solutions, and the properties of 2'-deoxyadenosine 5'-monophosphate in conditions that model formalin-fixed tissue dehydration," J Mason.
2. September 2006: Bethesda, Md, Innovative Molecular Analysis Technologies, National Cancer Institute, "Modeling formalin fixation of proteins and nucleic acids," J Mason.
3. September 2006: Maui, Hawaii, Western Section American Urological Association, "Cancer localization in the prostate with 18F-fluorocholine PET: initial results from a whole prostate PET-histopathologic correlation study," K Potter.
4. October 2006: Albuquerque, NM, Forces Health Protection Conference, "Laser ablation ICP-MS analyses-elemental and chemical mapping of trace toxic metals in pathology and forensic specimens," K Potter.
5. October 2006: Rockville, Md, Center for Prostate Disease Research, "Recovering proteins and RNA from formalin-fixed, paraffin-embedded tissue blocks," J Mason.
6. December 2006: Palo Alto, Calif, Cepheid Corporation, "Liposome polymerase chain reaction assays for biological toxins," J Mason.

Publicity

1. "Scientists develop ultra-sensitive test for cholera, botulinum" (Fountain H, correspondent) *The New York Times*, 15 April, 2006.
2. "PCR assay for biological toxins" (Kling J, correspondent) The American Chemical Society Website, May, 2006.
3. "More sensitive, quicker test developed for cholera and botulism" (Biello D, correspondent), The Scientific American Website, April, 2006.
4. "Non-antibody-based recognition: alternate molecules for detection of pathogens (Ngundi, MM et al, editors) Expert Reviews of Proteomics, 3(5), 511-524, 2006.
5. "A liposome-PCR assay for the ultrasensitive detection of biological toxins" (Kranz, D, University of Illinois, reviewer) Faculty of 1000, *Biology*, June, 2006.
6. "Better Detection to Tackle Bioterrorism" (Ruth Francis, Senior Press Officer, *Nature*) (Nature Biotechnology pre-publication press release about our Biotoxin assay) March 2006.
7. "Assays for biological toxins and disease biomarkers" (Kristin Raabe, correspondent) an interview for the radio program "New and Notable in Science," a national broadcast by the German radio network "Deutschlandfunk", 12 May, 2006.

RESEARCH

Publications

Journal Articles:

1. Rait VK, Zhang Q, Fabris D, Mason JT, O'Leary TJ. Conversions of formaldehyde-modified 2′-deoxyadenosine 5′-monophosphate in conditions modeling formalin-fixed tissue dehydration. *J Histochemistry and Cytochemistry*. 2006;54:301-310.
2. Mason JT, Xu L, Sheng ZM, O'Leary TJ. A liposome-polymerase chain reaction assay for the ultrasensitive detection of biological toxins. *Nature Biotechnology*. 2006;24:555-557.
3. Mason JT, Xu L, Sheng ZM, He J, O'Leary TJ. Liposome polymerase chain reaction assay for the sub-attomolar detection of cholera toxin and botulinum neurotoxin type A. *Nature Protocols*. 2006;4:2003-2011.
4. Potter K, Sweet DE, Anderson P, Davis GR, Isogai N, Asamura S, Kusuhara H, Landis WJ. Non-invasive studies of tissue-engineered phalanges by magnetic resonance microscopy and X-ray microtomography. *Bone*. 2006;38:350-358.
5. Pessanha B, Potter K, Kolodgie F, Farb A, Kutys R, Mont E, Burke A, O'Leary TJ, Virmani R. Characterization of intimal changes in early coronary lesions by magnetic resonance microscopy. *Radiology*. 2006;241:107-115.
6. Dirnhofer R, Jackowski C, Vock P, Potter K, Thali MJ. VIRTOPSY: minimal invasive, image guided virtual autopsy utilizing optical surface- and radiological cross sectional scanning: traditional autopsy turning into high-tech forensic investigation. *RadioGraphics*. 2006;26:1305-1333.

Abstracts

1. Mason JT, Rait VK, O'Leary JT. Effect of formaldehyde modifications on protein solubility and conformation in water-alcohol mixtures. Biophysical Society Annual Meeting. 2006;90:192a.

2. Mason JT, Rait VK, Fabris D, Zang Q, O'Leary TJ. Conversion of formaldehyde-modified 2'-deoxyadenosine 5'-monophosphate salt precipitates in ethanol. Biophysical Society Annual Meeting. 2006,;90:1765a.
3. Man Y-G, Stamatakos M, Mason JT, Gardner WA. Prostate tumor cells near and distant from focally disrupted basal cell layers have different expression profiles. American Society for Cell Biology 2006. *Molecular and Cell Biology*. 2006;17:1843.
4. Mason JT, Xu L, Sheng ZM, O'Leary JT. Immunoliposome-PCR: A simple ultrasensitive assay for the detection of biological toxins. Association for Molecular Pathology 2006. *Journal of Molecular Diagnostics*. 2006;20:645.

Projects:

1. Formalin fixation and recovery of RNA and protein, UBQI.
2. A field-deployable ultra-sensitive assay system for biological toxins using immunoliposome-DNA amplification hybrids, UBUC.
3. Nuclear microarrays for quantitative high-throughput molecular screening of tissue specimens, UBHP.
4. Correlation of NMR measurable parameters, UBAT.
5. Bone formation studies by magnetic resonance microscopy, UB5Q.
6. NMR microscopy of metastatic disease, UBTV.

Collaborators:

Military

1. Dr. Tiffany Heady, Walter Reed Institute of Army Research, Silver Spring, Md.
2. Dr. Potter has been asked to join a consortium that will be applying for a US Army grant to set up a Soldier Institute for Tissue Engineering and Regenerative Medicine (SITERM).
3. The Magnetic Resonance Imaging Facility has been asked to collaborate with the Defense and Veterans Brain Injury Center, Washington, DC, to study the pathology of traumatic brain injury. This is a congressionally funded project. We will be working with Dr. David Moore and Dr. Deborah Warden of the Defense and Veterans Brain Injury Center.

Civilian

1. Dr. Naomi Eidelman, American Dental Association, Gaithersburg, Md.
2. Dr. Darlene Ketten, Harvard Medical School, Boston, Mass.
3. Dr. Michael M. Batenjany, Novagen, Madison, Wis.
4. Dr. William Landis, Northwestern Ohio Universities College of Medicine, Rootstown, Ohio.
5. Dr. Lorraine Siperko, Northwestern Ohio Universities College of Medicine, Rootstown, Ohio.
6. Dr. John Small, National Institutes of Standards and Technologies, Gaithersburg, Md.
7. Dr. Paul Anderson, Queen Mary College, University of London, London, England.
8. Dr. Graham Davis, Queen Mary College, University of London, London, England.
9. Dr. Michael Thali, Institute for Forensic Medicine, University of Bern, Bern, Switzerland.
10. Dr. Anthony Guiseppi-Eli, Virginia Commonwealth University, Richmond, Va.
11. Dr. Sandi Kwee, Hamamatsu/Queen's PET Imaging Center, Queen's Medical Center, Honolulu, Hawaii.
12. Dr. William Oliver, Georgia Bureau of Investigation, Trion, Ga.
13. Dr. Jamie Downs, Regional Medical Examiner, Savannah, Ga.
14. Dr. Clive Taylor, Keck School of Medicine, Los Angeles, Calif.

Interdepartmental

1. Dr. Isabell Sesterhenn, Genitourinary Pathology, AFIP.
2. Dr. Jose Centeno, Environmental & Toxicologic Pathology, AFIP.
3. Dr. Todor Todorov, Environmental & Toxicologic Pathology, AFIP.

PROFESSIONAL ACTIVITIES

Official Trips

1. January 2006: National Institutes of Health, DOD representative to the Advisory Council of the National Institute of General Medical Sciences, Bethesda, Md, J Mason.
2. April 2006: National Institutes of Health, Special reviewer for Musculoskeletal, Oral and Skin Sciences Study Section, Bethesda, Md, K Potter.

3. May 2006: Member, working group for the evaluation of the Minority Opportunities in Research (MORE) program, National Institutes of Health, Bethesda, Md, J Mason.
4. July 2006: Reviewer for Musculoskeletal, Oral and Skin Sciences Study Section for Small Business - Orthopedic Medicine Applications, Bethesda, Md, K Potter.
5. July 2006: Reviewer for Special Emphasis Panel for Musculoskeletal, Oral and Skin Sciences for Musculoskeletal Biology and Tissue Engineering Applications, Bethesda, Md, K. Potter.
6. October 2006: National Institutes of Health, DOD representative to the Advisory Council of the National Institute of General Medical Sciences, Bethesda, Md, J Mason.
7. October 2006: Foundation for the Advanced Education in the Sciences, Immunohistochemistry workshop, Bethesda, Md, K Potter, JT Mason, IE Chesnick.
8. December 2006: National Institutes of Health, Special reviewer for Musculoskeletal, Oral and Skin Sciences Study Section NIH, Bethesda, Md, K Potter.
9. December 2006: Annual Interagency Botulism Research Coordinating Committee Meeting, Silver Spring, Md, J Mason.

Editorial Work:

JT Mason

1. *Biophysical Journal*
2. *Chemistry and Physics of Lipids*
3. *Journal of Histochemistry and Cytochemistry*
4. *Journal of Immunological Methods*
5. FEBS Letters
6. *Journal of Membrane Molecular Biology*
7. *Analytical Chemistry* (11 total)
8. *Journal of Membrane Molecular Biology*, editorial advisory board, J Mason.

K Potter

Journal of Magnetic Resonance Imaging and NanoMedicine, (3 total).

OFFICE OF QUALITY AND COMPLIANCE

Robert Foss
CAPT, DC, USN
Director, Office of Quality and Compliance
Associate Director, Navy

Safety Management

Office of Quality Assurance

Brenda L. Smith, MS, CSP, CHSP
Director
Date of Appointment – 21 May 2001

OFFICE OF SAFETY MANAGEMENT

MISSION

The Office of Safety Management was established in March 1994 to develop and manage a Safety Program as outlined in Army Regulation 385-10, the Department of the Army Safety Program. This office monitors guidelines set forth by the Environmental Protection Agency (EPA), Occupational and Safety Health Administration (OSHA) and the College of American Pathologists (CAP); serves as AFIP liaison with US Army Medical Command (MEDCOM) Safety Office; coordinates with the following Walter Reed Army Medical Center (WRAMC) departments - Safety Office, Occupational Health, Industrial Hygiene, Health Physics, Department of Public Works and the Fire Department. This office also serves as a member of many safety related committees; investigates all on-the-job injuries; and maintains a reference library of EPA, OSHA, DOD and local safety related publications. In keeping with the DOD goal of pollution prevention, this office operates 5 distillation units, which recycles alcohol, xylene, and formalin back into the AFIP laboratories.

STAFF

Brenda L. Smith, MS, CSP, CHSP, Director, Biological Safety, Occupational Health and Environmental Management
Tyrone L. Green, MS, CHSP, Safety and Occupational Health Manager
Jerome D. Escoe, Safety Technician
Akilah V. Witherspoon, Office Administrator/Safety Tech

ACTIVITIES

The Office of Safety Management currently sits on the following committees: AFIP Safety Committee; AFIP Biosafety Committee; AFIP Physical Security/Biosurety Committee, AFIP Quality Assurance Committee; AFIP Commissioning Committee; AFIP Synchronization Committee; AFIP Facilities Committee; AFIP Space Committee; Installation Safety Committee; Installation Hazardous Substance Management System (HSMS) Committee; Environmental Overwatch Training Sub-Committee; Installation Plans and Implementation Sub-Committee; and Installation Asbestos Management Team.

The Office of Safety Management has sole responsibility for disposal of all AFIP's hazardous waste to the WRAMC Hazardous Waste Bunker. This also includes making many entries in the Hazardous Substance Management System (HSMS), a computerized tracking system mandated by DOD. This system tracks hazardous substances from receiving from the vendor through disposal (cradle-to-grave).

The Office of Safety Management presents all of the annual training required by OSHA (Hazardous Communication, Bloodborne Pathogen, and Fire Extinguisher Training) to the staff of AFIP. In compliance with General Farmers Environmental Compliance Campaign Plan, the Office of Safety Management conducts Hazardous and Universal Waste Management training.

The Office of Safety Management has been tasked with a large new mission, the Waste Management Program. This includes the solvent distillation of xylene, alcohol and formalin; management of Regulated Medical Waste; monitoring of Hazardous (chemical) Waste; and monitoring of the Silver Recovery Program. AFIP's current alcohol and xylene recycling equipment has proven great cost-savings in the past few years.

Because of new regulatory requirements resulting from BioSurety and BioSafety, the Office of Safety Management has rapidly increased in its area of responsibility. This institute has also recently opened 2 new biocontainment laboratories that are BSL-3. New research protocols are now being generated and approved by the Biosafety Committee and outside inspections have increased because of the new regulatory requirements.

GOALS

1. Develop a computerized training program to track required training on all AFIP employees.
2. Establish and publish a monthly or quarterly Safety Newsletter.
3. Expand the AFIP Safety Program in order to investigate occupational illnesses and injuries more thoroughly.
4. Research the possibility of substituting nonhazardous chemicals for the current hazardous chemicals.

Frank J. Roberts
Quality Assurance Coordinator
Date of Appointment — 19 January 1993

OFFICE OF QUALITY ASSURANCE

STAFF

Admintrative

Nicole N. Jenkins, Health System Specialist
Harold Lindmark, Credentials Administrator
Leslie A. Middleton, AFIP Metrics Administrator
Estella L. Page, Office Automation Clerk
Frank J. Roberts, Chief

IMPACT:

The Office of Quality Assurance is responsible for the coordination of all quality assurance, risk management, and credentialing and privileging activities at the AFIP. These activities include ensuring compliance with the Institute's College of American Pathologists (CAP) accreditation requirements, providing oversight to the AFIP-sponsored Accreditation Council for Graduate Medical Education activities provided by the Institute, and maintenance and monitoring of the AFIP Metrics Program. The Office also manages the AFIP/Military/Veterans Affairs Histopathology Quality Assessment Program, Department of Veterans Affairs Systematic External Review of Surgical Cases Program, International Peer Review Program, the Medical Surveillance and Respirator Protection Programs for American Registry of Pathology contract employees, the AFIP Red Cross Volunteer Program, and the AFIP Intern Program. The Office of Quality Assurance serves as the liaison between the AFIP and the Department of Veterans Affairs Diagnostic Service, maintains the database of subscribers to the AFIP Letter, and mails newly published AFIP fascicles to active duty military pathologists

ACTIVITIES:

The Office of Quality Assurance engaged in the following activities in 2006:

- Coordinated the preparation and conducted the AFIP's interim College of American Pathologists' inspection.
- Reviewed and updated, as needed, AFIP Regulation 40-8, Veterans Affairs Pathology Review Program, AFIP Regulation 40-67, Medical Staff By-Laws, AFIP Regulation 40-68, Quality Assurance Administration, and AFIP Regulation 351-2, Policies and Procedures for the Administration of Graduate Medical Education.
- Provided senior staff members' with statistical data on case accessioning, management, and trends, as requested.
- Managed the external peer review program with the Brazilian Society of Pathology, State of Sao Paulo, Brazil. On a bi-monthly basis, 12-14 cases are sent to the AFIP for in-house review and 6 cases per year are sent to Brazil for their review.
- Histopathology Quality Assessment Program (HQAP) is a quality assessment tool which helps US Military and Veterans Affairs medical center departments of pathology maintain their level of diagnostic ability for a variety of pathology specimens. Four pathology cases are posted on the web quarterly, during the second month of each quarter for review and to diagnosis. Cases for this program are submitted on a rotational basis by AFIP departments. A case includes digital images and histories on the cases to be diagnosed, and discussion with references on the previous quarter's cases. Participants have from the first day of the month through midnight of the last day of the month to review the cases and provide their opinion of the diagnosis. After the review and diagnosis period, the partici-

pants' opinions of the diagnoses are electronically assembled by case and are forwarded to the contributing department/pathologist for scoring. Cases are scored correct, acceptable, or incorrect. Participants receive 1 CME credit for each case diagnosed. This program is also available to civilians for a fee. During 2006 this Program had 234 participants (military 10, VA 218, and 6 civilian) and these participants were awarded over 3,700 hours of Continuing Medical Education credit for participation, in the Program.

- Managed Systematic External Review of Surgical Cases (SERS) Program. The Chief, Pathology and Laboratory Medicine Service at each VA Medical Center that performs surgical and cytology examinations, selects and forwards to AFIP, 3 significant surgical pathology cases every other month for a total of 18 cases per year. The cases are reviewed by AFIP with comments on significant features. Quarterly, the Office of Quality Assurances provides the VA chief Consultant for Diagnostic Services Strategic Health Group a report on participating VA medical centers. During 2006, 94 facilities submitted 1,326 cases to the SERS program.
- Managed the AFIP's American Red Cross Volunteer Program by providing orientation and administrative support to volunteers, who serve the AFIP in numerous capacities by providing administrative support to departments, work on education programs, research projects, serve as docents in the National Museum of Health and Medicine, or as histopathology technician trainees. During 2006 37 volunteers provided over 7,890 volunteer hours to the AFIP.
- Managed the AFIP Intern Program which provides the opportunity for high school and college students interested in pursing a career in medicine and/or science an educational experience at the AFIP. Each student is assigned a mentor who provides hands-on and theoretical experience in the diverse field of laboratory medicine. Students attend weekly lectures, provided by AFIP staff that covers various topics in the field of pathology and laboratory medicine. Each student is also assigned a project that must be completed by the end of the Program and presented orally to staff and fellow interns. The program runs from mid-June through mid-August. During 2006, 13 students complete the Program. They were assigned to the Department of Environmental and Infectious Disease Sciences and the Department of Veterinary Pathology.
- Staff mailed AFIP/ARP the following complimentary fascicles to active duty military pathologists during 2006:
  - May-AFIP/ARP Atlas of Non-Tumor Pathology, Number 4, *Non-Neoplastic Kidney Diseases*.

    November-AFIP Atlas of Tumor Pathology, Series 4, Volume 2, *Tumors of the Bones and Joints*.
  - November- AFIP Atlas of Tumor Pathology, Series 4, Volume 3, *Tumors of the Serosal Membranes*.
  - November- AFIP Atlas of Tumor Pathology, Series 4, Volume 4, *Nonmelanocytic Tumors of the Skin*.
  - December- AFIP Atlas of Tumor Pathology, Series 4, Volume 5, *Tumors of the Eye and Ocular Adnex*a.
- Ms. Estella Page serves as the timekeeper/liaison for the 19 Veterans Affairs employees assigned to the AFIP.

COMMITTEES:

1. Awards/ Recognition Committee, N Jenkins
2. Credentials Committee, N Jenkins, H Lindmark
3. Education Oversight Committee, F. Roberts
4. Graduate Medical Education Committee, N Jenkins, F Roberts
5. Health Insurance Portability and Accountability Act (HIPAA) Compliance Committee, F Roberts
6. Quality Assurance Committee, N Jenkins, L Middleton, F Roberts
7. Organizational Day Planning Committee, F Roberts
8. Safety Committee, N Jenkins

GOAL

Ensure that the AFIP is fully prepared for its first unannounced College of American Pathologists inspection, which will occur during the Summer/Fall of 2007.

GRADUATE MEDICAL EDUCATION COMMITTEE

COMMITTEE MEMBERSHIP:

Leslie H. Sobin, MD, Senior Executive Service-Chair
George P. Lupton, MD, Program Director Dermatopathology Residency Program
CAPT Craig T. Mallak, Program Director Forensic Pathology Residency Program
Nadine S. Aguilera, MD, Program Director Hematopathology Residency Program
COL Elizabeth Rushing, Program Director Neuropathology Residency Program
Teri J. Franks, MD, Program Director Pulmonary Pathology Residency Program
Zhiping Liu, MD, Resident/Fellow Representative (July 06-June 07
Paul Hartel, MD, Resident/Fellow Representative (July 05-June 06)
Nicole L. Jenkins, Office of Quality Assurance-Secretary
Frank J. Roberts, Designated Institutional Official
Tammie Winters, Pulmonary Pathology
Danny L. Urquhart, American Registry of Pathology

The GMEC meets at least quarterly and maintains written minutes documenting its activities and fulfillment of its responsibilities.

AFIP COMMITMENT TO GME:

Graduate Medical Education at the AFIP is the cornerstone of the mission of education, research, and consultation. The AFIP acknowledges absolute correlation between quality graduate medical education, clinical excellence and scientific development. The AFIP is committed to assisting and expanding its GME programs by providing the necessary educational, financial, human resources to support its GME programs, and ensuring an environment conducive to teaching and higher learning. The program directors and their professional staff accept the greater responsibility for the fellow's professional and personal development wherein they continually seek to improve their own knowledge and skills. Together, the administration, program directors, and the participating fellows strive to enhance their professional ability and sustain an environment that nurtures innovation, creativity, and teamwork.

AFIP ACGME ACCREDITED PROGRAMS:

The AFIP serves a sponsoring institution for 5 pathology subspecialty programs: Dermatopathology, Forensic Pathology, Hematopathology, Neuropathology, and Selective Pathology (Pulmonary Pathology).

HOSPITALS SERVING AS PARTICIPATING INSTITUTIONS TO AFIP ACGME ACCREDITED PROGRAMS:

- Children's Hospital of Philadelphia, Philadelphia, Pa—Neuropathology
- National Naval Medical Center, Bethesda, Md—Hematopathology
- Office of the Chief Medical Examiner, State of Maryland, Baltimore, Md—Forensic Pathology and Neuropathology
- University of Maryland Medical System, Baltimore, Md—Neuropathology
- Walter Reed Army Medical Center, Washington, DC—Dermatopathology and Hematopathology

ACTIVITIES

Forensic Pathology Residency Review Committee Site Visit

The Forensic Pathology Residency Program received its RRC site visit on 11 May 2006. The results of the site visit results were presented to the Residency Review Committee for Pathology Fall 2006 meeting. The Program received a finding of Continued Full Accreditation with a 5-year accreditation cycle.

Change in Institutional Sponsorship for Forensic Pathology Residency Program

The Forensic Pathology Residency Program requested change in Institutional sponsorship from the Armed Forces Institute of Pathology (AFIP) to the National Capital Consortium (NCC). The Director of the AFIP concurred with the request. The NCC GMEC and Board of Directors approved the transfer request and the ACGME at its Fall meeting concurred with the request.

Closure of Residency Programs

The AFIP notified the ACGME that it is requesting Voluntary Withdrawal of Accreditation, without prejudice of its Dermatopathology and Hematopathology programs at the end of this academic year (June 07). Both programs were scheduled for RRC site visits on January 18, 2007. This decision was made because the AFIP is a Department of Defense (DoD) organization, which is scheduled to close through the DoD's Base Realignment and Closure Program (BRAC) and DoD will no longer support these programs.

Resident Supervision

The GMEC assures that each of AFIP's subspecialty residency programs provides appropriate supervision of its residents in accordance with ACGME's Institutional and program requirements. This is done through the internal review process, reviewing each program's letter of accreditation, reviewing program goals and objectives, resident exit survey conducted by the GMEC at the end of each academic year, and discussion at GMEC meetings.

Resident Responsibilities

Resident responsibilities are written into each resident's training agreement as well as each program's goals and objectivities. These documents are reviewed annually and updated as needed. The program directors meet with each resident at the beginning of each academic year to review the program goals and objectives and resident training agreement. The residents sign their training agreement at this meeting.

Resident Evaluation

Residents are usually evaluated after each rotation. At a minimum, each resident is evaluated every 6 months. Residents are also regularly assessed in each of the 6 general competencies (patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism, and system-based practice), using an evaluation form developed by the GMEC.

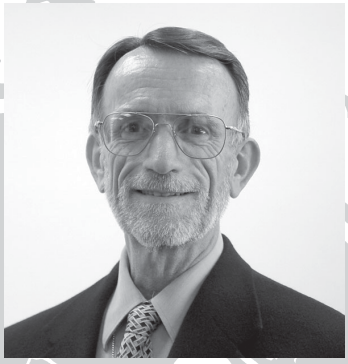
ACGME Duty Hour Requirements

The ACGME Duty Hour requirements have been implemented in our five-subspecialty programs and have been published in AFIP Regulation 351-2, Policies and Procedures for the Administration of Graduate Medical Education. The GMEC assesses program compliance with the duty hour requirements through a program letter of accreditation, internal reviews, and discussions at GMEC meetings.

General Competencies

The general competencies have been introduced into all AFIP residency program's curriculum. The programs are currently at various stages in the teaching and evaluation of these competencies. The GMEC is working with the program directors to ensure that the general competencies are fully implemented in all our programs. The general competencies are an open item at our GMEC meetings. During internal reviews detailed information is reviewed on the program's implementation and evaluation of the general competencies.

DIRECTORATE OF ADMINISTRATIVE SERVICES



James L. Staiger, MD
Acting Director, Administrative Services

Human Resources

Business Office

Resources Management

Logistics

Information Management

James Staiger, MD
Acting Director, Administrative Services
Date of Appointment — 7 December 2005
Director, Administrative Services — 21 January 2007

Director of Administrative Services ..... Charles Pemble, Col, USAF, MS/James L. Staiger, MD
Support Service Specialist ..... Cheryl D. Parrish

Human Resources ..... James L. Staiger, MD
Personnel Management Division ..... Wendy S. Baker
Military Personnel Division ..... Edward E. Davis, LT, MSC, USN
Civilian Personnel Division ..... Diane M. Day

Logistics Department ..... Harvey Soefer
Materiel Acquisition Division ..... Lanelle Chisolm
Facilities & Service ..... Cornelius L. Reeder
Facilities Maintenance Branch ..... Allen Harris
Environmental Services ..... Gary Brown
Property Management Division ..... Michael Stanley
Property Branch ..... Rudolph Wynn
Medical Maintenance Branch ..... Willie Jenkins
Logistics Support Division ..... Sam Belton
HSMS Branch ..... Christopher Jordan
Receiving & Distribution Branch ..... Diedra Carey
Security Division & Reception Desk ..... Darnell Jones

Information Management ..... Albert Judd
Automation Management Service ..... Michael Finely
Developers ..... Guy Peay
User Support ..... Edwana Jones
Network Support/Tel ..... Theodore Blount
Records Forms Management ..... Bonnie Short
Digital Imaging Center ..... Douglas Landry
Exhibits Production ..... Larry Claiborne

Director's Section (Effective 15 November 2005)
Business Office ..... Mike F. Nola, PhD
Resources Management ..... Kevin P. Monahan
Financial Division ..... Jeanette Barnes

NATIONAL MUSEUM OF HEALTH AND MEDICINE

Adrianne Noe, PhD
Director
National Museum of Health and Medicine

Adrianne Noe, PhD
Director
Date of Appointment—September 1995

NATIONAL MUSEUM OF HEALTH AND MEDICINE, AFIP

MISSION AND ACTIVITIES

The NMHM promotes the understanding of medicine—past, present, and future—with a special emphasis on American military medicine. It inspires interest in personal and public health. As the nation's museum of health and medicine since 1862, we aggressively identify, collect, and preserve important resources to achieve a broad agenda of innovative exhibitions, educational programs, and scientific, historical and medical investigations.

To achieve this, we promote the responsible use of the nation's National Historic Landmark collection by continuing to catalog the collections, to record detailed information about the holdings and to edit record to make databases available for the Internet, which allow the collection to be more accessible to researchers. We cultivate ties with professional medical societies and with the Department of Defense to assist in collecting artifacts significant to the history of the practice of medicine and the evolution of medical technology, emphasizing military medicine. Finally, we collect, preserve and interpret modern examples of significant medical technology to document the history of the practice of military medicine and the evolution of medical technology to ensure the continued development of the National Museum of Health and Medicine, AFIP, as a Department of Defense asset and as a national and international resource for the military medical community, professional health care workers and the general public.

In so doing, we emphasize the Museum's focus on critical public and military health issues, the importance of the Museum as a bridge between biomedicine and the general public, the Museum's role in helping to recruit the health professionals of tomorrow, and the Museum's research programs in medical medicine, medical imaging, and other areas.

ORGANIZATION

The Museum is organized into the Office of the Director, Public Programs and Exhibitions, and Collections and Research.

OFFICE OF THE DIRECTOR

STAFF

Adrianne Noe, PhD
Donna R. White, Administrator
Steven Solomon, Public Affairs Officer
(D) Courtney MacGregor, Public Affairs Specialist
(A) Jennifer Heilman, Public Affairs Specialist
Theresa Butler, Staff Assistant
Melba Stewart, Special Events and Facilities
Shelly Currie, Visitor Services Representative

Luis A. Pineda, Visitor Services Representative
David Martinez, Visitor Services Representative

The Office of the Director oversees the general activities and governance of all aspects of the Museum and provides policy, technical, and scientific direction. It directs all activities for the site, facility, and programs of the Museum as its activities evolve. Activities handled within the office are external and internal relations, governmental affairs, press and public relations, and institutional development. The office works with print and broadcast media, congressional offices, and local, national, and community organizations to encourage contract with the coverage of AFIP's National Museum of Health and Medicine. The Administrative support staff continues to improve the quality of support provided to the departments of the Museum. This administrative group provides a variety of management services essential to the operation of the Museum in the areas of budgeting, manpower/personnel, contract administration, and organizational management. The office provides general supervision of the Office of Public Affairs, the Department of Programs and Exhibitions, and the Department of Collections and Research. The office of the Director communicates and coordinates with the American Registry of Pathology (PL94-361) and numerous public and private organizations for institutional development. The Director of the National Museum of Health and Medicine is a member of the AFIP Executive Committee and an Associate Director of the AFIP.

Gift Shop

The Gift Shop offers a variety of merchandise to visitors of all ages and educational interests. The Gift Shop contributes to the advance marketing efforts of the Museum and Institute; it extends the effectiveness of the Museum's programs and exhibitions by selling objects related to Museum activities; and it generates revenue. Each object has a distinct connection with the Museum's mission and/or exhibits that are on display.

Facilities and Special Events

The National Museum of Health and Medicine's facilities and special events staff, in conjunction with the AFIP Directorate of Logistics Department, support and offer consultation to the NMHM in the following areas: physical security, storage movement, maintenance, repair and accountability of materials, housekeeping, exhibit upkeep and maintenance, waste collection and disposal, notification to the Provost Marshal of visitors attending special events and media filming. This notification is a part of the installation's ongoing security process. This department serves as a NMHM liaison with the AFIP Office of Safety Management. It also maintains and inventory of all hazardous chemicals located within the NMHM. The department also serves as a member of many safety-related committees and also investigates all facilities safety issues concerning staff and visitors. The Facilities Department assisted in assembling and disassembling temporary exhibits and prepared maintenance requests for the gallery to house exhibits.

Special Events staff provided support to the AFIP, WRAMC and the surrounding community by hosting and scheduling annual events for WRAMC continuing education courses such as Medical Effects of Ionization Radiation, Medical Management of Chemical & Biological Casualties and Emergency Medical Technician Training. Staff also provided logistical assistance for NMHM-sponsored events such as monthly health fairs, docent meetings, training sessions and other educational programs.

Standard Operating Procedures for Museum meetings and receptions were given to the event planners and/or point of contact for events. The office staffs and secures each event with Visitor Service Representatives. We also offer each event planner and/or point of contact a list of specialty caterers familiar with the policy and procedures of the NMHM. The Special Events Branch also assisted with the audio-visual needs of instructors, guest speakers, and event presenters.

Public Affairs

Efforts were continued and relationships strengthened within the business, museum, and tourism communities. The Museum remained an active member of Cultural Tourism DC, a coalition of arts, heritage, cultural, and community organizations that works to make Washington, DC a world-class destination for cultural tourism. Through CTDC the Museum received prominent recognition in its publications and web site. The Museum reaches into the State of Maryland through its membership in the Conference and Visitors Bureau of Montgomery County (CVB), Maryland and the Bethesda-Chevy Chase Chamber of Commerce. A highlight in 2006 was the Museum's participation in a FAM trip sponsored by the CVB that brought

members of the organization and the media to the Museum and resulted in an article of 700+ words in The Washington Post with this memorable line: “The concierges and sales directors were rapt.” A large picture inside the Museum was also published.

The Museum responded throughout the year to requests for information or assistance received by e-mail, telephone, and mail from the general public.

Marketing

Working closely with the Museum’s Public Programming Department, Public Affairs placed an emphasis on promoting programs and workshops to the local community to raise awareness of the Museum’s educational offerings and to increase program attendance. Promoted within the internal WRAMC and AFIP community as well as to the public, were the monthly health fairs held at the museum. Public Affairs also assisted with and promoted the Museum’s annual Brain Awareness Week program, a murder mystery forensics workshop, book signings for the authors of “Bird Flu: Everything You Need to Know About the Next Pandemic,” “MANHUNT: The 12-Day Chase for Lincoln’s Killer,” and "Sequence,” which received coverage by AP, Reuters and Lancet.

In addition to handling publicity and media coverage, Public Affairs coordinated the Museum’s annual participation in National History Day, a program for middle and high school students across the country; and made arrangements for the display of a museum skeleton at the 25th Army Science Conference held in Orlando, Fla.

The Museum’s Public Affairs Office wrote news releases and PSAs in 2006 to promote new exhibits, such as "Scarred for Life: Mono-Prints of Surgical Scars,” “Cartoonists take up Smoking,” “The Death of President James A. Garfield: An exhibition to commemorate the 125th anniversary of his assassination,” “Hairballs: Myths and Realities behind some Medical Curiosities,” and "Walter Reed's Last Ocularist.” There was significant coverage of these openings, including articles in The New York Times, The Washington Post, The Washington City Paper, The Washington Express, The DC Examiner, Modern Healthcare Magazine, etc. for “Scarred for Life.” The “Cartoonists take up Smoking” exhibit received coverage in DC Examiner, Family Practice News, Roll Call, The Baltimore Sun, and The Washington Post. The Garfield exhibit was covered by AMA News, El Mundo, Scripps-Howard News Service, The (Madison, WI) Capital Times, and The New York Times. Public Affairs handled advertising for Comprint Military Publications, The New York Times, The Washington Post, and Washington Parent.

Also, Public Affairs led VIP tours for various groups during the year, including The AF Officers Wives Club, the Surgeon General of the Thai Army and his delegation, residents in the Army-Baylor Graduate Program in Healthcare and Business Administration, and Thomas J. Dodd, the former US ambassador to Uruguay and Costa Rica.

Impact

The Museum continued to produce and distribute more than one news release a month for the media in 2006. More than 500 stories and news briefs were printed about exhibits, loans, accessions, events, programs, and health fairs, in publications with a combined circulation of more than 100 million. This coverage appeared in local, national, and international publications, as well as on TV and radio stations in the United States and overseas.

Media Coverage

Some highlights are:

Nestled on the campus of Walter Reed Medical Center is one of Washington D.C.'s most unique museums of artifacts and historical records in the world. The National Museum of Health and Medicine contains millions of documents, bones, tissues and brains of historical importance, battlefield trauma and medical oddities from all over the world. The museum has five collections, including anatomical collections, human development anatomy centre and the neuroanatomical centre. Founded in 1862 during the American Civil War, the museum was started as a way to study battlefield wounds and treatment from field hospitals operating in the various theatres of war. — *Associated Press TV*

Head to the National Museum of Health and Medicine in Washington, a part of the Armed Forces Institute of Pathology, a tri-service Army, Navy, and Air Force facility in Washington. There, a cheerful docent will point out a foot-long hairball removed from a 12-year-old girl and hand around a real liver and intestines preserved and kept in translucent plastic bins. The museum, established in 1862 to gather medical samples for study, has more than 24 million specimens. Its collection holds the bullet fired at Lincoln by John Wilkes Booth and fragments of the president's skull.—*Bloomberg News*

The gated garrison of the Walter Reed Army Medical Center, with its bunkerlike hospital, is not the first place you might expect to find an art exhibition in this city. And even if you found the show, inside the National Museum of Health and Medicine right around the corner from the vitrine containing the derringer bullet that killed Abraham Lincoln, you would probably be surprised to see the walls adorned with vaguely Conceptual-looking monochromatic prints featuring jagged ridges and blotches resembling some kind of late-Jackson Pollack experiment on loan from the Guggenheim. Yet their titles sound a lot less like museum labels than the check-in charts at a hospital trauma center: "Splenectomy"; "Lung Removal After Suicide Attempt"; "Broken Eye Socket Repair Using Bone From the Skull After Car Accident"; "Arm Reconstruction After Motorcycle Accident."— *New York Times*

In 2006 the Museum's staff assisted, met with, and/or was interviewed by media representatives for stories or documentaries on the History Channel, National Geographic TV, VOA TV News, WTOP-AM/FM (Washington, DC,) and others.

In 2006 the Museum's Public Affairs Office facilitated use of 1918 flu images in its Otis Historical Archives for a number of broadcast and print media, and other production companies and organizations, including:

ABC News
Adbusters Media
Aladdin Books, Ltd.
American Academy of Arts & Sciences
American Museum of Natural History
American Public Health Association
Associated Press
Awareness Publishing
BD Diagnostics
Brazilian Health Ministry
Canadian Society of Respiratory Therapists
CAPA TV Press Agency
Clarion Books
Comprehension Publishing
Comune di Castelfidardo – Assessorato alla Cultura
CQ Press
Elsevier Books
EMA, Inc.
Emu Verlag
Health News
UK Health Protection Agency
History Channel Magazine
Hitachi
Humane Society of the United States
IFDA
Indoor Environment Connections
Learning Media
Maine Medical Center
Maryland Medicine
Mosby
National Geographic TV
National Institute of Allergy and Diseases
National Institute of General Medical Sciences
New York Times
Nova science Now
PLoS Medicine
Ponteverde Press
Random House
Roanoke Times
Science
Smithsonian Magazine

St. *Paul Pioneer Press*
Tennessee Center for Historic Preservation
UCLA
University of Kentucky
Voice of America
Washington Post Magazine
Welt der Wunder
WGAL-TV
WGBH/ Nova
WGCU-TV
WHO
Wilmington Star-News
Wisconsin Historical Society
Zero Hora

Museum Newsletter

The Museum's newsletter, "Flesh and Bones," was published during 2006 with a circulation slightly expanded over that in 2005. In addition to being distributed internally to the departments of the AFIP, the newsletter was mailed to the Museum's mailing list, which includes the media, schools, libraries, and visitors who have signed up to receive information by mail. It contains articles that are researched and written by the museum staff about new exhibits, special programs, recently acquired artifacts, loans to other museums, etc.

The World Wide Web Site

The Museum's Public Affairs Office was principally involved in expanding content on the Museum web site to include information about new exhibits, such as "Scarred for Life: Mono-Prints of Surgical Scars," "Cartoonists take up Smoking," "The Death of President James A. Garfield: An exhibition to commemorate the 125th anniversary of his assassination," "Hairballs: Myths and Realities behind some Medical Curiosities," and "Walter Reed's Last Ocularist." In addition, in its role as web site content manager, the Public Affairs Office worked with its Webmaster to post information about program events, visitor and media comments, and accomplishments of the Museum's staff called "Staff on the Go." The Museum also continued to pursue opportunities to be added to other museum and tourism websites.

According to the web site's traffic report provided by Web Trends, the web site is averaging more than 30,000 hits daily compared to 12,000 hits daily in 2005, and in 2006 had more than 955,203 unique visitors who spent about 8 minutes during each visit to the web site. The Museum ensures accurate and timely information is provided to online web site information resources, and is currently linked from 258 other sites, 117 more than in 2005.

Professional Development/Media Contacts

To reach members of the media, Public Affairs staff participated in programs offered by the Baltimore Public Relations Council, Maryland Society for Healthcare Strategy and Market Development, Metropolitan Media Council, National Press Club, Public Relations Society of America, and the Society of Professional Journalists; attending off-site meetings and programs about or at: Associated Press, Baltimore Examiner, Bethesda Magazine, Capital News Service, Fox 5 News, Maryland Public TV, Senior Beacon, Smart Business Ideas Magazine, Smart Woman Magazine, The Baltimore Sun, The Corridor, The Gazette, Univision WMDO-TV, Washington Business Journal, WMAL-AM, and WMAR-TV (Baltimore Channel 2).

A member of the Public Affairs staff also completed an offsite Advanced Public Information Officer Course offered by FEMA at the Emergency Management Institute.

PUBLIC PROGRAMS AND EXHIBITIONS

MISSION/ORGANIZATION

The division directs and coordinates operational and interpretive components of the Museum. This includes administration, exhibitions, public programs, educational tours, facilities use, and related activities. Division staff worked with governmental agencies, professional associations, museums, and individuals to develop interpretive strategies that promote greater public

awareness of contemporary and historical perspectives on disease, public health, and health education.

STAFF

(A) Steven Hill, Exhibits Manager
(D) Janet Melson Burns, MA, Public Programs Coordinator
Andrea K. Schierkolk, BA, Tour Program Manager
William Discher, Exhibits Specialist

Docents

Sheila Anderson, BS; Solomon E. Barr, MD; Ed Beeman, MD; Catherine Bonomo, BS; Edward Byrdy, BS Ph; James DePersis; Regina Hunt, MEE; Marianne Jessee-Solfronk, MS; Brenda Kiessling, MD; Pam Kincheloe, BSN, JD; Lew E. Larson, BSEE; Richard Mulvaney, MD; Vincent G. Petrella, MD; Anne Pollin; Enid Rosen, BS; Marjorie D. Shaw, BA, PhD; Shen Sung, MD; S. Stephen Schiaffino, PhD; Carolyn Whittenberg, MSN

Museum Volunteers

Pauline E. Rabin, MD; S. Stephen Schiaffino, PhD.

Public Programs

On a monthly basis, several public programs were offered to members of the AFIP, WRAMC, and local military communities; all were open to and promoted to the public as well. They included book signings, monthly health fairs offered in conjunction with Health Pact, Inc., historical and scientific lectures, special docent lectures, staff offerings, and activities related to the current exhibitions of the Museum. In addition, the Museum hosted the international launch of a new work of fiction, novel, Sequence, by Lori Andrews, a forensic mystery dedicated to the staff of the Museum.

"Learning about Forensics IV: A Museum Murder Mystery," the third in a series of forensic programs, was presented in October. This day-long program, presented in two parts, was designed to provide the audience opportunities to see what real forensic scientists do to gather, analyze, and/or interpret forensic materials to help identify the remains of a dead person or to help solve a mystery. In the first part of the program, participants learned specifically about forensic anthropology and worked in teams to examine objects displayed in the "Human Body, Human Being" exhibit, as well as some replicated skeletal remains to determine the identity of a missing person. The second part of the program gave the participants opportunities actually to solve "a murder mystery." Staff provided an introduction to the second part of the program by staging the scene and identifying the murder victim and the suspects. Working in teams again, the audience viewed the crime scene (in a contained area on the museum floor), looked at collected evidence, and examined the evidence at activity stations located throughout the exhibit floor. Based on the testing done at the blood typing, DNA extraction, fingerprint identification, chromatograpy (ink analysis) and analysis of unknown substances, fiber and hair stations, the participants were able to identify the killer and solve the murder mystery.

Special events and lectures were also provided to local groups interested in the Museum, its local, national, and international history and significance, and related topics.

Collaborations

The NMHM collaborated for a fifth year with the Dana Alliance for Brain Initiatives and local organizations and national institutions in a 7-day celebration of "Brain Awareness Week 2006." Students from Washington, DC, Maryland and Virginia had the opportunity to participate in lectures, activities, and opportunities to interact with local neuroscientists. Students also got to see, touch, and learn all about the human brain. Neuroscientists, medical professionals and technicians, and educators from California Institute of Technology (Cal Tech); Rutgers University (Rutgers); NIH; Georgetown University (GU); Howard University (HU); George Mason University's Krasnow Institute (Krasnow); The Lynn A. Chiaverotti Fund (Lynn); University of Nebraska's Brains Rule (U of N); WRAMC's Defense and Veterans Brain Injury Center (DVBIC); and WRAMC's Army Audiology and Speech Center (Speech) partnered with NMHM and Dana to present lectures and hands-on activities for elementary, middle, and high school students.

Carol Trippitelli, MD(local psychiatrist); John Allman, PhD (Cal Tech); Barry R. Komisaruk (Rutgers); Catherine Sasek, PhD, of the National Institute on Drug Abuse (NIDA) of NIH; Jane Acri, PhD of NIDA of NIH; Allison Chausmer, PhD, of NIDA of NIH; David Thomas, PhD of NIDA of NIH; Gaya Dowling, PhD, of NIDA of NIH; Anna Staton of NIDA of NIH; Cheryl

Kassed, PhD, of NIDA of NIH; Dennis A. Twombly, PhD, of National Institute on Alcohol Abuse and Alcoholism (NIAAA) of NIH; Roger Sorenson, PhD, of NIAAA of NIH;; Alyssa Picchini of the National Institute of Mental Health (NIMH) of NIH; Allison Bennett of NIMH of NIH; Sonya Steele of NIMH of NIH; Naomi Raymundo of NIMH of NIH; Elizabeth Stillman of NIMH of NIH; Dylan Wint of NIMH of NIH; Ezat Luba Yomtovian of NIMH of NIH; Andrea Sawczuk, DDS, PhD, of the National Institute of Neurological Disorders and Stroke (NINDS) of NIH; Margo Warren of NINDS of NIH; Nancy Hart of NINDS of NIH; Paul Girolami of NINDS of NIH; Michelle Jones of NINDS of NIH; Amy Williams of NINDS of NIH; Richard Benson of NINDS of NIH; Kebreten F. Manaye, MD, of Howard University (HU); Eric Walters, PhD, of HU; Yousef Tizabi, PhD of HU; Mohommad N. Akhtar, MD, of HU; Martha I. Davila-Garcia, PhD, of HU; Jahn O'Neil of HU; Deniece Clifford of HU; Bruk Getachew, MS, of HU; Kimberly Walton, PhD, of HU; Toye Doggett of HU; Sara Kalifa of HU; Sandra Acquah of HU; Sheketha Hauser of Hu; Gerald Schuchman, MD, of Walter Reed Army Medical Center (WRAMC) (Speech); Joan Tendrich, MA, of WRAMC (Speech); 1LT Kara Delaney of WRAMC (Speech); 1LT Elizabeth Somrack WRAMC (Speech); Alice Marie Stevens of WRAMC (DVBIC); Gary R. Chiaverotti of the Lynn Foundation; Karen Graham of Charles Dana Alliance for Brain Initiatives; and Archie Fobbs, collections manager for the Neuroanatomical Collection provided lectures, hands-on activities and technical demonstrations that highlighted various brain functions or disturbances.

This year marked the seventh year that the Museum collaborated with Health Pact, Inc, a local nonprofit company that assists community organizations by securing medical personnel, community groups, and medical supplies to perform certain medical screenings at health fairs, to present "National Health Awareness Kickoff." This is a series of programs held the first Saturday of each month to acknowledge and explore certain health awareness issues. Medical professionals provided in-depth information on the selected health issue of the month and provided free health screenings for Museum visitors interested in the state of their health. This program continues to be an important part of the museum's on-going programs.

Ongoing Programs

The Museum continued to offer guided tours on the weekend to walk-in visitors on the second and fourth Saturday of each month.

Tour/Docent Program

In addition to the General tour, which introduces visitors to the highlights of the exhibition galleries, the following Curriculum Connection tours were offered during 2006: "Human Body, Human Being" and "To Bind up the Nation's Wounds: Medicine During the Civil War." The "Forensics Mystery" workshops continue to be popular hands-on activities for students, families, and adults. Docents, museum staff, and AFIP staff benefited from educational presentations made at monthly docent meetings, which draw upon the generous personal and professional contributions of local and more distant experts in areas related to the Museum's programs, exhibitions, and topics of general medical and historical interest.

EXHIBITS

The Exhibits Department was joined by Steven Hill and William Discher, who, with other staff members, installed numerous exhibitions. They include "Scarred for Life," an exhibition of scar-based monoprints linking the experiences of injury with the healing process, and highlighting Gaucher Disease. Hosting this exhibition, with sponsorship and support from Genzyme, Inc. and the National Gaucher Foundation, has allowed the Museum to reinforce its unique role as a special venue for members of the Walter Reed and national capital region medical communities. In addition, the Museum was honored to host "Cartoonists Take Up Smoking," an exhibition of original cartoon art from the collections of Alan Blum, MD, focusing on the linkages among smoking, advertising, and the medical and political processes that shape American's response to each. Also produced was an exhibition on the care received by President James Garfield in the aftermath of his attack by Charles Guiteau—an acknowledgement of the 125th anniversary of the event.

COLLECTIONS

STAFF

Jeffrey S. Reznick, PhD, Senior Curator
(D) Michelle Fontenot, Registrar
(A/D) Ashley Matthews, Registrar

Anatomical Collections
(D) Lenore Barbian, PhD, Acting Curator
(A) Brian Spatola

Historical Collections
Alan Hawk, Collections Manager
Donna Quist, Assistant Collections Manager
(A) Vincent Neaz, Photographer
Gloria Feeney, Volunteer

Human Developmental Anatomy Center
Elizabeth C. Lockett, Collections Manager
(A/D) Ashley Matthews, Collections Technician
(A) Johanna Medlin, Collections Technician
Austin Chang, Imaging Technician Virtual Embryo Project

Neuroanatomical Collections
Archibald J. Fobbs, Collections Manager
(D) Shannon Fobbs, Volunteer
Tony Hammonds, Volunteer
(A/D) Johanna Medlin, Project Technician
(D) Freddie Pruitt, Assistant
Stephen Schiaffino, PhD, Volunteer
(A) Mathew Wallace, Howard University, Washington, DC, Intern
(A/D) Mathew Chu, Spring Brook High School, Silver Spring, Md, Intern

Otis Historical Archives
Michael Rhode, Chief Archivist
Cathy Sorge, Assistant Archivist
Thomas Gaskins, Archives Technician
Kathleen Stocker, IMC Contract Archivist
(A) Lauren Bene, IMC Contract Archivist
(A) Scott Prouty, IMC Contract Archivist
(A) LaFonda Burwell, IMC Contract Archives Technician
(A) Shanika Queen, IMC Contract Archives Technician
(A/D) Maria Chua, IMC Contract Archives Technician
(D) Sarah Rice, IMC Contract Archivist

OVERALL IMPACT

The collections divisions of the NMHM preserve materials representing key subject areas in the history and practice of American medicine, military medicine, and modern medical and health issues and research. Each collecting division specializes in different media and subject areas. Overall the responsibilities of the divisions are to (1) provide the highest level of professional care to the NMHM collections and their associated documentation; (2) collect objects, specimens, and related archival materials deemed significant and relevant to the mission of the NMHM; and (3) support research, exhibits and public programs through access to collections.

Overall, the department of collections accessioned over 3 dozen historical and contemporary items relating to the key subject areas mentioned above. Moreover, the department facilitated loans of nearly a dozen objects to institutions including the San Diego Museum of Man, American Civil War Center at Historic Tredegar, National Vaccination Healthcare Center, and the Walter Reed Department of Pharmacy.

ANATOMICAL COLLECTIONS

IMPACT

Anatomical Collections collects and preserves human and non-human medical, pathological, and anatomical specimens and associated materials documenting normal anatomy and the response to disease and injury. Collections staff responded to over 50 significant research requests, supporting researchers with access to the collections or related materials and addressed dozens of less time-consuming inquiries as well, many of which were of military medical significance or originated within the military community.

Activities

1. L Barbian co-curated "Our Nation's Twentieth President: An exhibition to commemorate the 125th Anniversary of the Assassination of James A. Garfield" (July 2006)
2. L Barbian provided 16 lectures/presentations to school groups at the NMHM/AFIP and in the DC metropolitan area.
3. Staff members, led by Dr. Lenore Barbian, conducted the Annual Forensic Anthropology Course in collaboration with AFIP's education department.

HISTORICAL COLLECTIONS

IMPACT

The Division of Historical Collection acquires and preserves both artifacts of record and of note documenting the history of the practice of medicine, innovations in biomedical research and the evolution of medical technology. The collection emphasizes the role of the Armed Services of the United States, United States Public Health Service and the United States federal government as it relates to the above themes. The collection is made available for the education of medical professionals, Department of Defense personnel, historians and the public through exhibits in the museum, loans to other institutions and individualized study. Collections staff responded to over 80 significant research requests, supporting researchers with access to the collections or related materials and addressed dozens of less time-consuming inquiries as well, many of which were of military medical significance or originated within the military community.

Activities

The Historical Collections databases currently include 39,174 records. Historical Collections is the first dataset to go 'live' on KE EMu and currently the only live dataset. AJ Hawk of the Historical Collection's staff was involved in editing and standardizing approximately 13,665 records in the new database during CY 2006. G Feeney of the Historical Collection's staff was active in cataloging the museum's civil war bullet collection using the new software. The goal of the database is to make the holdings of Historical Collections more widely available to the research community. V Neaz of the Historical Collection's staff was active in imaging historical and anatomical artifacts for eventual incorporation into the Ke Emu database and in preparation for the the move to the museum's new location as a result of BRAC.

Historical Collections collected numerous artifacts to document the history of military medicine. Acquisitions included a first generation LSTAT [Life Support Trauma and Transportation], portable intensive care unit developed by the military and used in Kosovo, Afghanistan and Iraq; peripheral nerve block pumps, developed by the Military Advanced Regional Anesthesia and Analgesia consortium, used to administer epidural regional anesthesia to wounded soldiers being evacuated from Iraq and Afghanistan; surgical equipment used in a civil defense hospital at Mt. Weather observatory site; and several anesthesia machines used at Walter Reed Army Medical Center.

The Satava Collection initiative, a prospective collecting effort in honor of Richard Satava, MD, FACS, documents the influence of computerization in the practice of medicine. The museum acquired a head-mounted device used in Dr. Brenda Weiderhold in her 1997 controlled study of the use of virtual reality and cognitive-behavioral therapy, for which she was awarded the 2005 Satava Award. The Simulation Center of the Uniformed Services University of the Health Sciences transferred two computer surgical procedure simulators, developed by Defense Advance Research Projects Agency (DARPA). Dr. Satava agreed to support this collection initiative which will give the museum a unique opportunity to collect the technology causing a paradigm shift in the practice of medicine as it is occurring.

The third collection effort is the Orthotic and Prosthetics initiative which seeks to document

continuity and change in the field of orthotics and prosthetics. Items collected through this initiative include: a cineplasty artificial arm with the artificial hand controlled by a lever surgically implanted in the arm muscle, an early 20th century set of tools dating century used to carve out wooden prosthetic limbs, a set of wheelchairs and wheelchair testing devices that have redefined expectations wheelchair use by individuals with disabilities, and several manufacturer samples of modern artificial feet. This initiative updates to the twentieth and twenty-first centuries a substantial collection of artificial limbs dating from the early nineteenth century.

The Billings Microscope collection continues to expand chiefly with the addition of over a 100 nineteenth-century microscopes from a collector in Georgia, several microscopes used in the study of blood flow in capillaries (complete with custom built quartz-rod illuminators), and devices created by Dr. Frank Johnson of the AFIP, which were used by Dr. Brion Smith, also of the AFIP, to pass his Pathology boards.

Other significant donations include a collection of clinical laboratory equipment donated by the American Society of Clinical Pathology, a collection of over a 100 bedpans and urinals and the first gas sequencer used to isolate DNA.

AJ Hawk curated an exhibit on Hand Surgery which opened during the annual conference of the American Society for Surgery of the Hand describing how hand surgery has evolved over the last century. The exhibit opened in September 2006. AJ Hawk appeared as a commentator on the Shoe Fluoroscope on the History Channel's, Modern Marvels, "Engineering Disasters" and on the history of military medicine with WYPR 88.1 FM radio program, The Signal, "War and Medicine."

HUMAN DEVELOPMENTAL ANATOMY CENTER

IMPACT

The Human Developmental Anatomy Center acquires and maintains collections pertaining to general developmental anatomy and neuroanatomy. Collections such as the ones housed at the Human Developmental Anatomy Center provide researchers with a central location from which to obtain data about normal development for both human and common research species. HDAC maintains and archives the largest collection of human and comparative developmental material in the United States, in such a way as to make them most useful for research activities, yet preserve them for future generations of researchers. Collections staff responded to over 30 significant research requests, supporting researchers with access to the collections or related materials and addressed dozens of less time-consuming inquiries as well, several of which originated within the military community. Consultations and collaborations occurred with the National Institutes of Health Nuclear Magnetic Research Center, the National Library of Medicine, Bethesda, Md, the National Heart Lung and Blood Institute, the Louisiana State University Health Sciences Center in New Orleans, La, Anatomical Travelogue, Inc., in New York, and the Johns Hopkins University School of Medicine, Center of Magnetic Resonance Microimaging in Baltimore, Md. NIH support continued for Center activities.

NEUROANATOMICAL COLLECTIONS

The Neuroanatomical Collections area continues to be the recipient of National Science Foundation funding for electronic collections development. Through this resource and other support, the division encourages use of its resources by all qualified members of the research community as part of its role within the Armed Forces Institute of Pathology and the National Museum of Health and Medicine. This division collects and preserves valuable artifacts of neuroanatomy, and strives to become the premier repository in the United States for collections focusing on neuroanatomy in the embryo, the adult human, as well as other selected species.

The division includes the Yakovlev-Haleem Neuropathology and Development Collection, the Blackburn-Newmann Collection, the Lindenburg Forensic Pathology Collection, the Welker Comparative Neuroanatomy Collection, the John I. Johnson Comparative Collection, and ten other major collections.

Consultation

Numerous researchers utilized the Neuroanatomical Collections during 2006. Collaborating researchers include the following individuals, among many others:

*John I. Johnson, PhD, Department of Anatomy, Michigan State University.

*Wally I. Welker,PhD, Department of Physiology, University of Wisconsin-Madison
John Allman, PhD, Hixon Professor of Neurobiology, Division of Biology, California Institute of Technology.
Kebreten Manaye, MD, Department of Physiology and Physics, Howard University College of Medicine.
Lori Marino, PhD, Neuroscience and Behavioral Biology Program, Emory University
Robert Switzer III, PhD, Neuroscience Associates, Inc.
Manuel F. Casanova, MD, Gottfried and Gisela Kolb Endowed Chair in Psychiatry University of Louisville Department of Psychiatry.
William W. Seeley, MD, Clinical Fellow in Behavioral Neurology, University California San Francisco, Memory & Aging Center.
Karen Graham, Dana Alliance for Brain Initiatives.
John Morris, Neuroscience Program, Michigan State University.
Jason Kaufman, PhD, Division of Biology, California Institute of Technology.
Michael Szesze, Montgomery County Public School, Program Supervisor for Science.
Nancy Peckerar, Downcounty Partnership Coordinator, Spring Mill Field Office, Montgomery County Public Schools.
Richard S. Nowakowski, PhD, Department of Neuroscience and Cell Biology, University of Medicine and Dentistry of New Jersey.
William W. Seeley, MD, Memory and Aging Center, University of California at San Fran cisco, San Francisco, Calif.
Carolyn Ikpeama, Student Program Director, St. Louis Science Center, St Louis, Science Scope.
Jose Ramos, Graphics Research Supervisor, Exhibition Department, American Museum of National History, New York, NY.
Barabara Birnman, Public Affairs Specialist, National Institutes of Health, Frederick, Md.
Julie Korenberg, MD, Department Medical Genetics, Cedar Sinai, Los Angeles, Calif.
Patrick Hof, MD, Department of Geriatrics, Mount Sinai School of Medicine, New York, NY.

*Collaborations with these scholars continue to be possible chiefly through support of the National Science Foundation.

Other Activities

John Allman PhD, Division of Biology, Caltech University, Pasadena, California, and his staff, in collaboration with Neuroanatomical collections staff, conducted research on the developing spindle cells and their correspondence to fetal development and adult mental illness. Also in the initiated was a stereology (algorithmic mapping) of the human and other mammalian brains project. Additionally, Allman, in cooperation with Neuroanatomical collections staff, Dr. Kebreten Manaye of Howard University and Dr. Julie Korenburg of Cedars-Sinai Medical Center, was awarded a $1.8 million research grant from the James S. McDonnell Foundation, to be used for brain research over the next 3 years.

The Neuroanatomical Collections were instrumental in providing valuable educational experiences for students from the Rappahannock High School, Swanson Middle School, George Washington University, and Howard University.

The Neuroanatomical division of the National Museum of Health and Medicine/AFIP, the Dana Alliance for Brain Initiatives, and the National Institutes of Health collaborated on a Brain Awareness program. Students from Virginia, Maryland, and the District of Columbia were invited to hear featured speakers from NIH and to participate in interactive demonstrations. They also viewed artifacts from the museum's brain collections. A total of 900 students attended the program.

Internet/Web Site

Research into the Neuroanatomical Collections was also made possible via the Internet at http://www.brainmuseum.org as well as through mirror sites at http://www.manateebrain.org; http://www.brains.rad.msu.edu (the Michigan State portal); and http://turing.commtechlab.msu.edu/default.htm (the database site). The University of Wisconsin-Madison, and Michigan State University, continued to maintain this website jointly and chiefly through support from the aforementioned grant from the National Science Foundation. Collection inquiries via the website increased 30 percent. Requests for collection images, scheduled visits to the collections division and to the museum have all increased as a result of the website. The website receives

about 120 hits per day from all over the world. Educators continue to report that the website is a useful curriculum development resource for science projects and for answering structural and functional questions about the brain.

Other activities include continuing development of online atlases. A search function was added to the widely used human brain atlas, made from MRI images from Michigan State and images of stained sections from the Yakovlev-Haleem collection at the National Museum of Health and Medicine.

This search function of the web site enables locating any neuroanatomical structure in the plane of section of choice, and will be expanded to include other atlases as they are completed. In this way users can view instant comparisons of corresponding structures in brains of different species. Labeling of stained sections in the sagittal and horizontal planes is in progress for the sheep brain atlas, and in the coronal and horizontal planes for the dolphin brain atlas. These atlases are located on the Internet at http://www.msu.edu/user/brains/atlases.

Another activity has been the publication of the seventh account of brains of whales and dolphins in MRI images, whose detailed identification was aided by stained specimens in the Yakovlev and Wisconsin collections. This latest account describes the brain of the Spinner Dolphin, *Stenella longirostris orientalis*.

Conservation

Collection staff continued to identify and pursue conservation priorities with specific attention to the Welker Comparative Neuroanatomy Collection slides, this work being a defined expectation of the aforementioned National Science Foundation grant. Additionally, documents of the Welker Collection were transferred to acid free folders after scanned images were preserved on compact discs for future access.

Reorganization of the Yakovlev-Haleem library continued alongside reassessment of staff workspace. Selected contents of the library were relocated to the museum's off-site storage facility in Gaithersburg, Md for storage. Additionally, slides from the C. Miller Fisher Collection were stored in slide cabinets at the Gaithersburg facility.

Equipment

One stereology computer system was purchased with support from the J. McDonnell Foundation and John Allman, PhD.

OTIS HISTORICAL ARCHIVES

IMPACT

The Otis Historical Archives (OHA) was created in 1971 to house the rare and historic books the Museum had created or collected. Today, its holdings, which date back to the establishment of the Museum in 1862, consist of more than 350 collections that, if laid end to end, would stretch for over a mile. The Archives has several strengths. The Museum's unique heritage makes it a rich repository for information on American military medicine, particularly the Civil War period. The archives is also home to an extensive photographic collection, including many early photomicrographs, abundant examples of medical illustration from the Civil War and World War I, films and videos, and trade literature and advertisements from the late 19th century.

Activities

Substantial requests for information were handled, frequently regarding sensitive topics. The Vorwald Collection continues to be used for research for asbestosis lawsuits in spite of being open to the public for 2 decades. Interest in the 1918 influenza epidemic has not yet peaked, and many requests were received to use images from the Archives, all of which are viewable on the website to facilitate research. A book chapter '"A Repository for Bottled Monsters and Medical Curiosities: The Evolution of the Army Medical Museum" on the Medical Museum in the nineteenth century was provided for *Small Shrines and Halls of Fame: Local Museums and Local Histories,* an edited volume by Amy Levin. Rhode submitted his presentation "The Rise and Fall of the Army Medical Museum" for publication in Washington History magazine and gave a paper on the Museum's changes in WWI for the University of Newcastle's WWI conference in the spring. He continued to work on preparing his lecture on the Medical and Surgical History of the War of the Rebellion for publication in the Journal of the History of

Medicine and Allied Sciences. At the beginning of the year, we assisted the General Services Administration with their historical survey of St. Elizabeth's Hospital campus, providing photographs and other material from the collection. A tour was given to Catholic University's library school students in August. Discussions have begun with USUHS regarding transferring the WIDMET Vietnam casualty data back to AFIP, prefatory to scanning it.

The Medical Illustration Service Library, through the IMC scanning project, is being scanned. Rhode is the Task Order Manager for the MIS part of the project; he and the assistant archivists and technicians selected material for scanning, reviewed the material and recommended accepting the work on behalf of the government. Stocker has been promoted to team leader for the project. The members of her IMC team are processing the images for scanning and then cataloguing them when they return. Gaskins and Sorge are providing the quality control. 200,000 images were scanned this year, and are currently being catalogued and indexed. Three major groups of photographs, the Museum and Medical Arts Service (MAMAS) photographs taken during WWII in Europe and Asia, the images from the publication Atlas of Tropical and Extraordinary Diseases, and AFIP staff portraits were scanned in 2005 and cataloguing for them was completed in 2006. This year photographs were scanned from collections including WWI/ Reeve, Medical Illustration Service Library, Swan Vietnam War slides, American Expeditionary Forces, Signal Corps, HDAC's Arey-Depena lantern slides, Korean War Ballistic, and WRAIR Korean War photographs. Most of the Museum's World War I & II photographs will now be digitized although cataloguing of the images, when necessary, is ongoing. 19th century Medical Museum publications such as the 6-book *Medical & Surgical History of the War of the Rebellion* and the 3-volume 1860s catalogue were scanned as was the 17-volume US Army Medical Department in the World War.

Computerized cataloguing on the collection level has continued in the shelf inventory. Cataloguing for the General Medical Products Information Collection, Medical Ephemera, New Contributed photographs, Audiovisual collection, AFIP Historical Files and others was done. Implementation of a comprehensive computer catalogue for the entire Museum continued with data from the archives being turned over to KE Software for conversion to their EMU database. New material acquired included approximately 80 boxes of videotapes from WRAMC-TV, Ophthalmic Pathology registry logbooks, and the Canham scrapbook on the Army Nutrition Laboratory as well as many smaller pieces. Museum records from staff members were added to the archives. Rhode interviewed departing AFIP Public Affairs Officer Chris Kelly for the AFIP Oral History Collection. Sorge processed and arranged neuropathologist Webb Haymaker's papers and is working on the finding aid. She also added new material to the WRAMC Historical Collection and updated its finding aid.

Research and historical material, mostly on military medicine, was provided to AFIP especially the Public Affairs Office and Neuropathology Department, WRAMC's Borden Institute and Blood Donor Center, USUHS's Audiovisual Department, as well as Archive Builders, Australian National University, Belfilms, Ltd., Bent Tree Press, City of Rock Island, Ill, Cox Health, Congressional Quarterly, Dallas Morning News, Dependable Productions, EHT Traceries, Inc., Encyclopedia Britannica, Inc., Enslow Publishers, Farallon Films, FiftyX, Inc., General Services Administration, George Washington University, GMMB, Greenwood Publishing Group, Grinnell College, Gustavus Adolphus College, Herzfeld & Rubin, P.C., Hierophant Publishing Services, Hospital of Saint Raphael/Yale University School of Medicine, Houghton Mifflin, Humane Society of the United States, Journal of Bone and Joint Surgery, Kazan, et al., PLC, Kirsten Schultz Design, KPI, Los Alamos National Laboratory, Mackinaw Area Historical Society, McGill University, MCMS, Missouri School System, Montgomery College, Montilla Pictures, Mutter Museum, National Museum of American History, National Museum of Natural History, Native American Rights Fund, New York Center for Book Arts, New York Times on the Web, Ohio State Historical Society, Ohio State University, Omaha VA Medical Center, PBS/ Bosch and Company, Principle Pictures, Inc., Red Herring Magazine, Rosen Publishing, San Diego Air and Space Museum, Syracuse University, Texas Christian University, The Pacific, University of Chicago Press, University of California Berkeley, University of California Davis, University College London / Wellcome Trust Centre for the History of Medicine, University of North Carolina School of Medicine, University of Portland, University of Toronto, University of Western Ontario, WHO Barcelona, William Paterson University, Willamette University and Yale University.

The significant Archives presence including the Guide to the Collections of the Museum on the website remains the main way researchers begin to use the archives, and several finding aids were added to the website. More archival collections were listed in the Library of Congress' National Union Catalogue of Manuscript Collections (NUCMC), ensuring wider

researcher use of the collections. The exhibit Battlefield Surgery 101 was revised yet again, this time with major support from the Archives.

Rhode served on the AFIP's Institutional Review Board and HIPPA committees as well as Museum committees including the Admin group, the collections committee and the database committee.

Selected media interactions include:

August 2006: Interview for WYPR Baltimore's The Signal on Battlefield Surgery 101 exhibit; and December 2006: Interview for Washington Business Journal, December 4.

NMHM EDUCATION

Courses

L Barbian conducted the 19th annual Forensic Anthropology course at the National Transportation Safety Board Academy in Ashburn, Va in June 2006. Participants numbered over 60. Planning for the 2007 course was undertaken by Dr Barbian's successor, Brian Spatola, MA.

Trainees

In the Otis Historical Archives, intern Chris Abraham of the University of Maryland processed and catalogued 2 collections—Incoming Correspondence of the Army Medical Museum, and R.M.S Jackson's Civil War records. Intern Amanda Montgomery, also from UMD, processed and described AEF Photographs which then were turned over to IMC for scanning, and is currently working on WWI photographs used to compile the official medical history of the war.

In the Neuroanatomical Collections, 2 interns, Mathew Wallace of Howard University, and Matthew Chu of Spring Brook High School, Silver Spring, Md assisted in operations of the division.

Faculty Appointments

1. A Noe, Adjunct faculty, Department of Computational Sciences, George Mason University, Farifax, Va.
2. JS Reznick, adjunct faculty, Department of Community Health and Family Practice, Howard University College of Medicine, Howard University, Washington, DC.
3. JS Reznick, elected Fellow of the Royal Historical Society, United Kingdom.
4. JS Reznick, Honorary Research Fellow, Department of Modern History, Centre for First World War Studies University of Birmingham, United Kingdom.

NMHM RESEARCH

Publications

Journal Articles

1. Connor JTH, Rhode M. "Exhibiting the Holocaust," Canadian Bulletin of MedicalHistory. 2006;23:245-256.
2. Hawk AJ, Japan's Lind: Baron Kanehiro Takaki and the cause of Beriberi, *The Grog Ration*. 2006(September-October);1:3:4-5.
3. Hawk AJ, The Great Disease Enemy, Kak'ke (Beriberi) and the Imperial Japanese Army, *Military Medicine*. 2006;171:4:333-339.

Other Publications

Hawk AJ, "Review of John H. Brinton. Memoirs of John H. Brinton: Civil War Surgeon, 1861-1865." H-CivWar, H-Net Reviews, April 2005. http://www.h-net.org/reviews/showrev.cgi?path=228311119638375

Ongoing projects

1. AJ Hawk, History of the Imperial Japanese Army Medical Department 1870-194.5
2. JS Reznick, History of Prosthetics and Orthotics, ca. 1860-present.
3. JS Reznick, Military Medicine in World War I America.

Collaborators in research

Please see divisional sections detailed above.

NMHM PROFESIONAL ACTIVITIES

Official trips/presentations

1. January 2006: Orlando, Fla, Society for Integrative and Comparative Biology, presentation of “Shared characters of cerebral isocortex in cetacean bottlenosed dolphins, Tursiops truncatus, and Artiodactyl domestic sheep, ovisaries,” JI Johnson, JA Morris, AJ Fobbs Jr.
2. March 2006: Bethesda, Md, Hyatt Regency, Forensic Anthropology workshop for the 42nd Annual Forensic “Dental identification and emerging technologies course,” L Barbian.
3. April 2006: San Francisco, Calif, American Association of Anatomists Meetings, “Sensory cerebral cortex in cetartiodactyls compared with that in primates and carnivores,” JI Johnson, JA Morris, KD Sudheimer, AJ Fobbs Jr.
4. April 2006: Newcastle, United Kingdom, First World War and Popular Culture Conference, United Kingdom, “Military-Hospital magazines and newspapers during the first World War,” J Reznick.
5. April 2006: Newcastle, United Kingdom, First World War and Popular Culture Conference, University of Newcastle, “Mobilizing the museum: the professional and public display of military medicine in America during World War I,” M Rhode.
6. April 2006: Forensics Mystery Workshop for Smithsonian Resident Associates program at the National Library of Medicine in conjunction with the "Visible Proofs" exhibit, L Barbian with J Burns (of NMHM Public Programs).
7. April 2006: Forensic Anthropology Lecture for American University Anthropology Class, L Barbian.
8. May 2006: Michigan Chapter Society for Neuroscience, presentation of “Sensory cerebral cortex in cetartiodactyls compared with that in primates and carnivores,” JI Johnson, JA Morris, KD Sudheimer, AJ Fobbs Jr.
9. May 2006: Halifax, Nova Scotia, Canada, Medical Museums Association Annual Meeting, AJ Hawk.
10. May 2006: Halifax, Nova Scotia, Canada, American Association for the History of Medicine Annual Conference, AJ Hawk.
11. May 2006: Society for the History of Navy Medicine First Annual Conference, Halifax, Nova Scotia, Canada, A Hawk .
12. August 2006: Frederick, Md, National Museum of Civil War Medicine, “The rise and fall of the Army Medical Museum,” M Rhode.
13. October 2006: St. Louis, Mo, St. Louis Science Center, “The teenage brain and alcoholism,” A Fobbs.
14. October 2006: Montreal, Quebec, International Academy of Pathologists, “AFIP and the National Museum of Health and Medicine in history,” A Noe.
15. October 2006: Washington, DC, Marian Koshland Science Museum, “Lincoln connections at the National Museum of Health and Medicine,” J Reznick.
16. November 2006: Society for Neuroscience, “Functional architecture of insular cortex and the formation of frontal and temporal lobes,” JI Johnson, JA Morris, B Lundrigan, RC Switzer, AJ Fobbs.
17. December 2006: Magnetic Imaging Conference, presentation of “Detailed anatomic microimaging of early stage human embryos,” S A Anderson, S Yamada, E Lockett, and C Lockett.

AMERICAN REGISTRY OF PATHOLOGY

William A. Gardner Jr, MD
Executive Director
Date of Appointment — 1 August 2002

AMERICAN REGISTRY OF PATHOLOGY (ARP)

During the past year, the American Registry of Pathology (ARP) supported 7 year-long Callender-Binford fellows in subspecialty areas of pathology. For the current year, there are 3 such fellows and, given the uncertainty related to AFIP, it is unlikely that fellowships will be offered at that location after the current year. During the past year, ARP also sponsored 28 one-month Donald West King fellowships in subspecialty training to pathology residents from 16 US and 6 foreign programs. ARP sponsored 15 CME courses, at AFIP, in areas of genitourinary, ophthalmic, renal, and forensic pathology and has 14 courses planned for the current year. The 6-week Radiologic Pathology course continues to be a mainstay of radiology residencies throughout the country. Along with our supporting Radiology societies, ARP is partnering with other organizations, such as USUHS, to plan for continuation of this valuable educational program following a disestablishment of AFIP educational programs.

This past year, ARP continued to receive grants and contracts. Many ARP personnel relate to Department of Defense functions, which are currently (12/07) slated for continuity beyond the closure of Walter Reed. For example, the majority of personnel for the Armed Forces DNA Identification Laboratory (AFDIL) are ARP employees. These functions are currently slated to be relocated to Dover, Delaware after 2011. One of the contracts awarded ARP in competitive bidding in the current calendar year is for forensic odontology support (6 FTE's) at Dover. We anticipate opening an office in Dover, in addition to our current offices on the Walter Reed campus, in Silver Spring, Md, and in Rockville, Md.

ARP Press had a very successful year with the publication of 3 volumes in the Tumor Atlas Series—*Tumors of the Serosal Membranes*, by authors Andrew Churg, Philip Cagle, and Victor Roggli; *Nonmelanocytic Tumors of the Skin*, by authors James Patterson and Mark Wick; and *Tumors of the Eye and Ocular Adnex*a, by authors Ramon Font, J. Oscar Croxatto, and Narsing A. Rao. In the Tumor Atlas Series, *Tumors of the Pancreas*, by authors Drs. Ralph Hruban, Martha Pitman, and David Klimstra, is currently being shipped to subscribers. The next volume, now scheduled for distribution in May, will be *Tumors of the Central Nervous System*, by authors Drs. Peter Burger and Bernd Scheithauer.

Current officers of the ARP Board are: Dr. Fred Gorstein, Chair, Dr. Ron DeLellis, Vice-Chair, and Dr. Ralph Eagle, Secretary/Treasurer.

2006 CUMULATIVE PUBLICATIONS LIST

2006 CUMULATIVE PUBLICATIONS LIST

Discounting duplicate listings for multiple authors, in 2006 the medical and scientific staff of the AFIP published 150 articles in professional journals and 104 abstracts. They contributed 30 chapters to published books, and were authors or editors of 8 published books. Thirty three miscellaneous publications included chapters in various course syllabuses, newsletter issues, Web publications or epubs, and books and fascicles digitized for online publication. Details of these publications appear below. Authors are listed alphabetically within departments, divisions, offices, etc, which are also listed alphabetically.

AIDS, DIVISION OF

Journal Article

Hofman P, Nelson AM. The pathology induced by highly active antiretroviral therapy against human immunodeficiency virus: an update. *Current Medicinal Chemistry*. 2006;13:3121-3132.

Abstracts

1. Nelson AM. The pathology of antiretroviral therapy. *Mod Pathol*. 2006(Sep);19(Suppl 3):129, Abstract 592.
2. Nelson AM, Man Y-G. Mast cells in HG lesions of patients co-infected with Human Papilloma Virus (HPV) and Human Immunodeficiency Virus (HIV). *Lab Invest*. 2006(Jan);86(Suppl 1):257A, Abstract 1190.

ARMED FORCES MEDICAL EXAMINER, OFFICE OF

Journal Article

1. Eckart RE, Scoville SL, Shry EA, Potter RN, Tedrow U. Causes of sudden death in young female military recruits. *Am J Cardiol*. 2006;Jun 115;97(12)1756-1758.
2. Levy AD, Abbott RM, Mallak CT, Getz JM, Harcke HT, Champion HR, Pearse L. Virtual autopsy: Preliminary experience in high velocity gunshot wound victims. *Radiology*. 2006;240 (2): 522-528.

Book Chapter

Mallak CT, contributing author, "Miscellaneous and Special Topics in Forensic Pathology," Chapter 18. *Basic Competencies in Forensic Pathology: A Forensic Pathology Primer*. Northfield, Ill: College of American Pathologists Press; 2006.

Other Publications

Harcke HT, Levy AD, Getz JM, Robinson S. "Multidetector Computed Tomography (MDCT) Analysis of Projectile Injury in Forensic Investigation." Exhibit presentation at the Radiologic Society of North America 92nd Scientific Assembly and Annual Meeting. November 25 -December 1, 2006.

BIOPHYSICAL TOXICOLOGY DIVISION OF

Journal Articles

1. Christian WY, Hopenhayn C, Centeno JA, Todorov TI. Distribution of urinary selenium and arsenic among pregnant women exposed to arsenic in drinking water. *Environmental Research*. 2006;100:115-122.
2. Finkelman RB, Belkin HE, Centeno JA. Health impacts of coal: should we be concerned? *Geotimes*. 2006;30:31-35.

Extended Manuscripts

1. Chin-Hsiao TsengP1P, Ching-Ping TsengP1P, Choon-Khim ChongP1P, Tong-Yuan TaiP1P, Jose A. Centeno*P P2006. Arsenic and peripheral arterial disease in Taiwan. In: Alpoim MC, Norais PV, Santos MA, Cristovao AJ, Centeno JA, Collery P, eds. *Metal Ions in Biology and Medicine*, Vol. 9PthP. Paris: John Libbey Eurotext; 2006: pp 511-517.
2. Mosley C, Todorov TI, Tseng CH, Centeno JA.* 2006. Characterization of arsenic species by raman microspectroscopy. In: Alpoim MC, Norais PV, Santos MA, Cristovao AJ, Centeno

JA, Collery P, eds. *Metal Ions in Biology and Medicine*, Vol 9Pth P. Paris: John Libbey Eurotext; 2006: pp 70-74.

Book Chapters

1. Selinus O, Finkelman RB, Centeno JA. Human health and ecosystems. In: Zektser IS, Marker B, Ridgway J, Rogachevskaya L, and Vartanyan G, eds. *Geology and Ecosystems. Part IV*. Springer;2006: ISBN 0-387-29292-6.
2. Centeno JA, Tchounwou PB, Patlolla AK, Mullick FG, Murakata L, Meza E, Gibb H, Longfellow D, and Yedjou CG. Environmental pathology and health effects of arsenic poisoning: a critical review. In: Naidu R, Smith E, Smith J and Bhattacharya P, eds. *Managing Arsenic In the Environment: From Soil to Human Health*. Chapter 17. Adelaide, Australia:CSIRO Publishing Corp;2006: pp 311-327. ISBN: 1-57808-425-3.
3. Todorov TI, Ejnik JW, Mullick FG, Centeno JA. Chemical and histological assessment of depleted uranium in tissues and biological fluids. In: Miller AC, ed. *Depleted Uranium – Properties, Uses, and Health Consequences*. Chapter 6, Boca Raton, FL:CRC Press;(In Press):pp 85-103. ISBN: 0-8493-3047-5.

Research Abstracts Published in Books of Abstracts and/or Conference Proceedings:

1. Tchounwou PB, Centeno JA, Patlolla AK. Arsenic toxicity and carcinogenesis: A health risk assessment and management approach. In: *Book of Abstracts: 9th International Symposium on Metal Ions in Biology and Medicine*, Lisboa, Portugal; pp. 46, 0-6.
2. Gray MA, Centeno JA, Todorov TI, Slaney DP, Nacey JN. Environmental exposure to Cd, Zn, and Se and risk of prostate cancer. In: *Book of Abstracts: 9th International Symposium on Metal Ions in Biology and Medicine*, Lisboa, Portugal; pp 61, 0-21.
3. Centeno JA, 2006. The emerging discipline of medical geology: health risks from long-term Hg exposure. In: *Book of Abstracts: 9th International Symposium on Metal Ions in Biology and Medicine*, Lisboa, Portugal; pp 35, PL-11.
4. Mosley CN, Centeno JA, Todorov TI. Characterization of arsenic species by Raman microspectroscopy. In: *Book of Abstracts: 9th International Symposium on Metal Ions in Biology and Medicine*, Lisboa, Portugal; pp. 139, 0-99.
5. Todorv TI, Gray MA, Kadjacsy-Balla A, Mullick FG, Centeno JA. Cd, Zn, Se and As content in fresh and paraffin embedded prostate tissues. In: *Book of Abstracts: 9th International Symposium on Metal Ions in Biology and Medicine*, Lisboa, Portugal; pp 143, 0-103.9. Centeno JA. Medical geology: an emerging discipline in support of environmental medicine and public health. In: Proceedings: XLIII Brazilian Geological Congress. Aracaju, Brazil. 7 September 2006.
6. Centeno JA, Finkelman RB, Selinus O, Mullick FG. Global impacts of geogenic arsenic: a medical geology research case. In: Summary of Abstracts: International Symposium on Medical Geology, Royal Swedish Academy of Sciences, Stockholm, Sweden. May 18, 2006.
7. Selinus O, Finkelman RB, Centeno JA, 2006. The Medical Geology Revolution. In: Proceedings of the 7th International Symposium on Environmental Geochemistry. Chinese Journal of Geochemistry 25(Suppl.);81:2006.
8. Centeno JA, Cook A, Weinstein P. Environmental toxicology and exposure to natural dust: the role of trace elements. In: Proceedings of the 7th International Symposium on Environmental Geochemistry. Chinese Journal of Geochemistry 25(Suppl.);222:2006.
9. Centeno JA. Medical geology: an emerging discipline in support of environmental medicine and public health. In: Proceedings: XLIII Brazilian Geological Congress. Aracaju, Brazil. 7 September 2006.
10. Centeno JA, Cook A, Weinstein P. Health effects of natural and mineral dust: the role of trace elements and compounds. In: Proceedings (CD version): XXVI International Congress of the International Academy of Pathology – Environmental Pathology Symposium SYM25, 2006. Montreal, Canada.
11. Centeno JA. Medical geology: an emerging discipline in environmental and military medicine. In: Book of Abstracts: 9th Annual Force Health Protection Conference, Albuquerque, NM, pp. 73.
12. Todorov TI, Potter K, Reedy EA, Centeno JA. Laser ablation ICP-MS analyses: elemental and chemical mapping of trace and toxic metals in pathological and forensic specimens. In: Book of Abstracts: 9th Annual Force Health Protection Conference, Albuquerque, NM, pp. 174.
13. Squibb KS, Todorov TI, Centeno JA, Engelhardt S, and McDiarmid MA. Blood uranium concentration as a biomarker of human exposure to depleted uranium (DU) in Gulf War I

veterans with embedded fragments. In: Book of Abstracts: Society of Toxicology.

14. Kolker KA, Conko K, Koslo K, Panov Y, Gibb H, Centeno JA, Korchemagin V, Gunchenko V. Environmental and occupational exposure to inorganic Hg in Gorlovka, Ukraine. In: Book of Abstracts: 8th International Conference on Mercury as a Global Pollutant, Madison, WI, August 2006.

BIOPHYSICS, DEPARTMENT OF

Journal Articles:

1. Dirnhofer R, Jackowski C, Vock P, Potter K, Thali MJ. VIRTOPSY: minimal invasive, image guided virtual autopsy utilizing optical surface- and radiological cross sectional scanning: traditional autopsy turning into high-tech forensic investigation. *RadioGraphics*. 2006;26:1305-1333.
2. Mason JT, Xu L, Sheng ZM, O'Leary TJ. A liposome-polymerase chain reaction assay for the ultrasensitive detection of biological toxins. *Nature Biotechnology*. 2006;24:555-557.
3. Mason JT, Xu L, Sheng ZM, He J, O'Leary TJ. Liposome polymerase chain reaction assay for the sub-attomolar detection of cholera toxin and botulinum neurotoxin type A. *Nature Protocols*. 2006;4:2003-2011.
4. Pessanha B, Potter K, Kolodgie F, Farb A, Kutys R, Mont E, Burke A, O'Leary TJ, Virmani R. Characterization of intimal changes in early coronary lesions by magnetic resonance microscopy. *Radiology*. 2006;241:107-115.
5. Potter K, Sweet DE, Anderson P, Davis GR, Isogai N, Asamura S, Kusuhara H, Landis WJ. Non-invasive studies of tissue-engineered phalanges by magnetic resonance microscopy and X-ray microtomography. *Bone*. 2006;38:350-358.
6. Rait VK, Zhang Q, Fabris D, Mason JT, O'Leary TJ. Conversions of formaldehyde-modified 2'-deoxyadenosine 5'-monophosphate in conditions modeling formalin-fixed tissue dehydration. *J Histochemistry and Cytochemistry*. 2006;54:301-310.

Abstracts

1. Man Y-g, Stamatakos M, Mason JT, Gardner WA. Prostate tumor cells near and distant from focally disrupted basal cell layers have different expression profiles. American Society for Cell Biology 2006. *Molecular and Cell Biology*. 2006;17:1843.
2. Mason JT, Rait VK, O'Leary JT. Effect of formaldehyde modifications on protein solubility and conformation in water-alcohol mixtures. *Biophysical Society Annual Meeting*. 2006;90:192a.
3. Mason JT, Rait VK, Fabris D, Zang Q, O'Leary TJ. Conversion of formaldehyde-modified 2'-deoxyadenosine 5'-monophosphate salt precipitates in ethanol. *Biophysical Society Annual Meeting*. 2006,;90:1765a.
4. Mason JT, Xu L, Sheng ZM, O'Leary JT. Immunoliposome-PCR: A simple ultrasensitive assay for the detection of biological toxins. Association for Molecular Pathology 2006. *Journal of Molecular Diagnostics*. 2006;20:645.

CLINICAL LABORATORY MANAGEMENT, CENTER FOR

1. Catalasan I. BOMO Lab Break Out CD: a compendium of laboratory management topics and issues. Self-published.
2. Ciolorito LR. Consultant's Corner Society Scope. *Society of Armed Forces Medical Laboratory Scientists Newsletter.* Winter 2006; Vol 9, Number 1.
3. Roncarti DM. Consultant's Corner Society Scope. *Society of Armed Forces Medical Laboratory Scientists Newsletter*, Fall 2006.

DERMATOPATHOLOGY

Journal article

Tomaszewski M-M, Marquart L, Turiansky GW, Lupton GP. Primary malignant mesothelioma resenting as an umbilical tumor. *JAAD*. 2006; 55: S101-102.

DOD DNA REGISTRY

Journal Articles

1. Coble MD, Vallone PM, Just RS, Diegoli T, Parsons TJ. Effective strategies for increasing forensic discrimination with the mtDNA coding region. *International Journal of Legal Medicine*. 2006;120:27-32.

2. Dixon LA, Dobbins AE, Pulker H, Butler JM, Vallone PM, Coble MD, Parson W, Berger B, Brubweiser P, Mogensen HS, Morling N, Nielsen K, Sanchez JJ, Petkovski E, Carracedo A, Sanchez-Diz P, Brion M, Irwin JA, Just RS, Loreille O, Parsons TJ, Syndercrombe-Court D, Schmitter H, Gill P. Analysis of artificially degraded DNA using STRs and SNPs: results of a collaborative European (EDNAP) exercise. *Forensic Science International*. 2006;164:33-44.
3. Kovatsi L, Parsons TJ, Just RS, Irwin JA. Genetic variation for 15 autosomal STR loci (PowerPlex 16) in a population sample from northern Greece. *Forensic Science International*. 2006;159(1):61-63.
4. Niederstätter H, Coble MD, Grubwieser P, Parsons TJ, Parson W. Characterization of mtDNA SNP typing and mixture ratio assessment with simultaneous real-time PCR quantification of both allelic states. *International Journal of Legal Medicine*. 2006;120:18-23.

ENDOCRINE AND OTORHINOLARYNGIC/HEAD-NECK PATHOLOGY, DEPARTMENT OF

Book Chapters

1. Thompson LDR, Heffess CS. Non-neoplastic lesions of the pituitary gland. In: Thompson LDR, ed. *Endocrine Pathology: Foundations in Diagnostic Pathology Series* .Goldblum JR, series ed. London: Elsevier; 2006.
2. Thompson LDR, Heffess CS. Benign neoplasms of the pituitary gland. In: Thompson LDR, ed. *Endocrine Pathology: Foundations in Diagnostic Pathology Series*. Goldblum JR, series ed. London: Elsevier; 2006.
3. Thompson LKDR, Heffess CS. Malignant neoplasms of the pituitary gland. In: Thompson LDR, ed. *Endocrine Pathology: Foundations in Diagnostic Pathology Series*. Goldblum JR, series ed. London: Elsevier; 200
4. Wieneke JA, Lack EE. The adrenal glands. In: Bostwick DG, Eble JN, eds. *Urologic Surgical Pathology*. 2nd ed. St. Louis, Mo: Mosby; 2006.

ENVIRONMENTAL PATHOLOGY, DIVISION OF

Journal Articles

1. Lewin-Smith MR, Kalasinsky VF, Mullick FG. Correspondence Re: "C.Guo, K.E. McMartin, The cytotoxicity of oxalate, metabolite of ethylene glycol, is due to calcium oxalate monohydrate formation, Toxicology 208 (3) (2005) 347-255" (Letter to the Editor). *Toxicology*. 2006;222:160-161.
2. Murakata LA, Lewin-Smith MR, Specht CS, Kalasinsky VF, McEvoy PL, Vinh TN, Rabin LN, Mullick FG. Characterization of acrylic polyamide plastic embolization particles in vitro and in human tissue sections by light microscopy, infrared microspectroscopy and scanning electron microscopy with energy dispersive X-ray analysis. *Mod. Pathol*. 2006;19:922-930.

Abstracts:

Lewin-Smith M, Neafie R, Mullick FG. Birefringence of helminths pathogenic to humans. *Modern Pathology*. 2006;19(supplement 3):133.

ENVIRONMENTAL TOXICOLOGY, DIVISION OF

Journal Articles

1. Chiry O, Pellerin L, Monnet-Tshudi F, Fishbein WN, Merezhinskaya N, Magistretti PJ, Clarke S. Expression of the monocarboxylate transporter MCT1 in the adult human brain cortex. *Brain Res*. 2006;1070:65-70.
2. Lee E, Kidder LH, Kalasinsky VF, Shoppelrei JW, Lewis EN. Forensic visualization of foreign matter in human tissue by near-infrared spectral imaging: Methodology and data mining strategies. *Cytometry A*. 2006;69:888-896.
3. Lewin-Smith MR, Kalasinsky VF, Mullick FG. Correspondence Re: "C. Guo, K. E. McMartin, The cytotoxicity of oxalate, metabolite of ethylene glycol, is due to calcium oxalate monohydrate formation, Toxicology 208(3) 2005 347-355". *Toxicology*. 2006;222(1-2):160-161.
4. Merezhinskaya N, Ogunwuyi SA, Fishbein WN. Expression of monocarboxylate transporter 4 in human platelets, leukocytes, and tissues assessed by antibodies raised against terminal versus pre-terminal peptides. *Mol Genet Metab*. 2006;87:152-161.
5. Murakata LA, Lewin-Smith MR, Specht CS, Kalasinsky VF, McEvoy PL, Vinh TN, Rabin LN, Mullick FG. Characterization of acrylic polyamide plastic embolization particles in vitro

and in human tissue sections by light microscopy, infrared microspectroscopy, and scanning electron microscopy with energy dispersive X-ray analysis. *Mod Pathol*. 2006;19:922-930.

Abstracts

1. Kalasinsky VF, Tristan JO, Pizzolato KM, Tamanaha EY, Gaydos JC, MacIntosh VH, Malone JL, Rumm PD, Mullick FG. DoD Directory of Public Health Laboratory Services Internet-Accessible Database. *Book of Abstracts of the International Conference on Emerging Infectious Diseases*, Atlanta, Ga, March 19-22, 2006.
2. Kalasinsky VF, Tristan JO, Pizzolato KM, Tamanaha EY, Gaydos JC, MacIntosh VH, Malone JL, Rumm PD, Mullick FG. Internet-Accessible Database of DoD Laboratory Services, *Book of Abstracts of the Society of Armed Forces Medical Laboratory Scientists*, Reno, Nev, March 26-30, 2006

FORENSIC TOXICOLOGY, DIVISION OF (OAFME)

Journal Articles

1. Cox D, DeRienz R, Levine, B, Jufer-Phipps R, Jacobs A, Fowler D. Distribution of ether in two post-mortem cases. *Journal of Analytical Toxicology*. 2006;30:635-37.
2. Huestis MA, Smith ML. Modern analytical technologies for the detection of drug abuse and doping. Review Article. *Drug Discovery Today: Technologies*. 2006;3(1):49-57.
3. Huestis MA, ElSohly M, Nebro W, Barnes A, Gustafson RA, Smith ML. Estimating time of last oral ingestion of cannabis from plasma THC and THCCOOH concentrations. *Therapeutic Drug Monitoring*. 2006;28:540-544.
4. Huestis MA, Gustafson RA, Moolchan ET, Barnes A, Bourland JA, Sweeney SA, Hayes EF, Carpenter PM, Smith ML. Cannabinoid concentrations in hair from documented cannabis users. *Forensic Science International*. 2006; [Epub ahead of print]
5. Jemionek, JF, Bosy T, Jacobs, A, Holler, J, Maglulio, J, Dunkley, C. Five cases of d-amphetamine positive urines resulting from ingestion of "Brazilian nutritional supplements" containing fenpoporex. *ToxTalk*. 2006;30(2):11.
6. Kaushik R, Levine B, LaCourse WR. A brief review: HPLC methods to directly detect drug glucuronides in biological matricies (Part I). *Analytica Chimica Acta*. 2006;556: 255-266.
7. Kaushik R, LaCourse WR, Levine B. Determination of ethyl glucuronide in urine using reverse-phase HPLC and pulsed electrochemical detection (Part II). *Analytica Chimica Acta*. 2006;556:267-274.
8. Kim I, Huestis, MA. A validated method for the determination of nicotine, cotinine, trans-3¢-hydroxycotinine, and norcotinine in human plasma using solid phase extraction and liquid chromatography-atmospheric pressure chemical ionization - mass spectrometry. *Journal of Mass Spectrometry,* 2006;41:815-821.
9. Lebeau MA, Montgomery MA, Morris-Kukoski C, Schaff JE, Deakin A, Levine B. A comprehensive study on the variations in urinary concentrations of endogenous gamma-hydroxybutyrate. *Journal of Analytical Toxicology*. 2006;30:98-105.
10. Paul BD, Smith M. Cyanide and thiocyanate in human saliva by gas chromatography-mass spectrometry. *Journal of Analytical Toxicology*. 2006;30:511-515.
11. Sklerov JH, Cox DE, Moore KA, Levine B, Fowler, D. Tizanidine distribution in a postmortem case. *Journal of Analytical Toxicology*. 2006;30:331-334.
12. Sklerov JH, Levine B, Ingwersen K, Arronica-Pollak P, Fowler D. Two cases of fatal amlodipine overdose. *Journal of Analytical Toxicology*. 2006;30:346-50.

Book Chapter

Huestis MA, Smith ML. Human cannabinoid pharmacokinetics and interpretation of cannabinoid concentrations in biological fluids and tissues. In: Mahmoud AE, ed. *Marijuana and the Cannabinoids*. Totowa, New Jersey: Humana Press; 2006: 205-236.

Book

Levine B, ed. *Principles of Forensic Toxicology*, revised and updated second edition, Washington, DC: AACC Press; 2006.

GASTROINTESTINAL PATHOLOGY, DIVISION OF

Journal Articles

1. Agaimy A, Wunsch PH, Sobin LH, Lasota J, Miettinen CM. Occurrence of other malignan-

cies in patients with gastrointestinal stromal tumors. *Semin Diagn Pathol*. 2006;23:120-129.
2. Brierley JD, Greene FL, Sobin LH, Wittekind C. The "y" symbol: an important classification tool for neoadjuvant cancer treatment. *Cancer*. 2006;106:2526-7.
3. Dow N, Giblen G, Sobin LH Miettinen M. Gastrointestinal stromal tumors: differential diagnosis. *Seminars Diag Pathol*. 2006;23:111-119.
4. Levy AD, Rimola J, Mehrotra AK, Sobin LH. Benign fibrous tumors and tumorlike lesions of the mesentery: radiologic-pathologic correlation. *RadioGraphics*. 2006; 26:246-264.
5. Patel ND, Levy AD, Mehrotra AK, Sobin LH. Brunner gland hyperplasia and hamartoma: imaging features with clinicopathologic correlation. *Am J Radiol*. 2006; 187:715-722.
6. Miettinen M, Fetsch JF, Sobin LH, Lasota J. Gastrointestinal stromal tumors in patients with neurofibromatosis 1: a clinicopathologic and molecular genetic study of 45 cases. *Am J Surg Pathol*. 2006;30(1):90-96.
7. Miettinen M, Makhlouf H, Sobin LH, Lasota J. Gastrointestinal stromal tumors of the jejunum and ileum: a clinicopathologic, immunohistochemical, and molecular genetic study of 906 cases before imatinib with long-term follow-up. *Am J Surg Pathol*. 2006;30:477-489.

Abstracts

1. Miettinen M, Makhlouf H, Sobin LH, Lasota J. Gastrointestinal stromal tumors (GISTs) of the jejunum and ileum: a clinicopathologic, immunohistochemical and molecular genetic study of 906 cases prior to imatinib with long-term follow-up. Mod Pathol. 2006;19:56A.
2. Koh E-S, Gospodarowicz MK, Groome PA, Keller S, Greene F, Ngan HYS, Wittekind C, Sobin LH. UICC TNM Project: International 'Panel of Experts': Goals and Development. 'UICC World Cancer Congress, Washington DC, July 2006: abstract 13-4
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